Fire Plan Review Guide

City of Corvallis

May 1st, 2020

Fire Prevention Division
Fire Plan Review Guide

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Corvallis Fire Code

Corvallis Fire Code

Adoption of State Fire Code (CFC 7.08.010)

The State of Oregon Fire Code (OFC) effective November 16, 2019, including the Table of Contents Appendices B, C, D, H, I, K, N, Q, R, and T, and the Index together which prescribe regulations safeguarding life health property and public welfare to a reasonable degree from the hazards of fire explosion and panic save and except such other portions thereof are herein after deleted herein modified or amended is hereby adopted and by this reference made apart here of with the same force and effect as though set forth herein in full. The foregoing is referred to as the "Fire Code" and is composed of the 2018 edition of the International Fire Code as published by the International Code Council and amended by the Oregon State Fire Marshal said Fire Code is on file and open to public inspection in the City Library. All referenced standards in OFC Chapter 80 are hereby adopted and are on file and open to public inspection at the Fire Prevention Office of the Fire Department.

Change of Use or Occupancy (CFC 7.08.020)

OFC Section 102 adopted by this Chapter is amended, and Section 102.11.1 is added, to read in its entirety as follows:

102.1 Construction and design provisions. The construction and design provisions of this code shall apply to:

1. Structures, facilities and conditions arising after the adoption of this code.
2. Existing structures, facilities and conditions not legally in existence at the time of adoption of this code.
3. Existing structures, facilities and conditions prior to a State building code required in Chapter 11.
4. Existing structures, facilities and conditions that, in the opinion of the Corvallis Fire Marshal, constitute a distinct hazard to life or property. See Section 111 of this code.

102.2 Administrative, operational and maintenance provisions. The administrative, operational and maintenance provisions of this code shall apply to:

1. Conditions and operations arising after the adoption of this code.
2. Existing conditions and operations

102.3 Change of use or occupancy. The provisions of the Building Codes as adopted by the City of Corvallis shall apply to all buildings undergoing a change of occupancy.

102.4 Application of building code. The design and construction of new structures shall comply with the building codes as adopted by the City of Corvallis. Repairs, alterations, and additions to existing structures shall comply with these building codes as adopted by the City of Corvallis.

102.5 Application of residential code. The design and construction of new residential structures shall comply with the residential building codes as adopted by the City of Corvallis. Repairs, alterations, and additions to existing structures shall comply with these residential building codes as adopted by the City of Corvallis.

102.6 Historic buildings. The construction, alteration, repair, enlargement, restoration, relocation, or movement of existing buildings or structures that are designated as historic buildings when such buildings or structures do not constitute a distinct hazard of life or property shall be in accordance with the provisions of the building codes as adopted by the City of Corvallis. Fire protection in designated historic buildings shall be provided with an approved fire protection plan as required in Section 1103.1.1.

102.7 Referenced codes and standards. The codes and standards referenced in this code shall be those that are listed in

OFC Chapter 80 and such codes and standards shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between the provisions of this code and the referenced standards, the provisions of this code shall apply.

102.7.1 Conflicts. Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of the Corvallis Fire Code shall apply.

102.7.2 Provisions in referenced codes and standards. Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of the Corvallis Fire Code, as applicable, shall take precedence over the provisions in the referenced code or standard.

102.8 Subjects not regulated by this code. Where applicable standards or requirements are not set forth in this code, or are contained within statutes or administrative rules adopted by the jurisdiction, compliance with applicable standards of the National Fire Protection Association or other nationally recognized fire safety standards, as approved, shall be deemed as prima facie evidence of compliance with the intent of this code. Nothing herein shall derogate from the authority of the Corvallis Fire Marshal to determine compliance with codes or standards for those activities or installations within the Corvallis Fire Department's jurisdiction or responsibility.

102.9 Matters not provided for. Requirements that are essential for the public safety of an existing or proposed activity, building or structure, or for the safety of the occupants thereof, which are not specifically provided for by this code shall be determined by the Corvallis Fire Marshal.

102.10 Conflicting provisions. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.11 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

OFC 102.11.1 Local interpretation. Corvallis Fire Department Fire Plan Review Guide has been developed with the intent to detail and clarify the city application of this Fire Code as adopted by the City of Corvallis these guidelines are available for public review at the administrative Offices of the Fire Department and on the city's website.

102.12 Application of references. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

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Pre-Development Checklists

Pre-Development Checklist

See the CFD Fire Plan Review guide sections for detailed requirements.

General Vehicle Access	☐	The fire apparatus access road shall extend to within 150 feet of all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.	OFC 503.1.1
	☐	The Fire Marshal is authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.	OFC 503.1.2
	☐	Buildings or facilities having a gross *building area* of more than 62,000 square feet shall be provided with two separate and *approved* fire apparatus access roads.	OFC D104.2
	☐	Multiple-family residential projects having more than 100 *dwelling units* shall be equipped throughout with two separate and *approved* fire apparatus access roads.	OFC D106.1
	☐	Developments of one- or two-family *dwellings* where the number of *dwelling units* exceeds 30 shall be provided with two separate and *approved* fire apparatus access roads.	OFC D107.1
	☐	Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses.	OFC D104.3
	☐	Fire apparatus access roads shall have an unobstructed width of not less than 20 feet and an unobstructed vertical clearance of not less than 13 feet 6 inches	OFC 503.2.1
	☐	Fire apparatus access roads shall be marked with permanent NO PARKING—FIRE LANE signs when the width is reduced to 20 feet or less, or in aerial access zones. 12” x 18” high, with red letters on a white reflective background.	OFC D103.6
	☐	The fire access road shall support a 75,000 lb load	OFC D102.1
	☐	All vehicle modeling shall use the ladder truck to determine access. See the vehicle specifications in the Fire Plan Review Guide.	OFC D103.3
	☐	The fire access road shall have a 28’inside, and 48’ outside, turning radius	OFC D103.3
	☐	Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an *approved* area for turning around fire apparatus.	OFC D103.4
	☐	Fire apparatus turnarounds shall comply with OFC Appendix D, Figure D103.1	OFC D103.4
	☐	The grade of the fire apparatus access road shall not exceed 10%.	OFC D103.2
	☐	The angles of approach and departure for fire apparatus access roads shall not exceed 8 degrees	OFC D013.2
Aerial Access	☐	Buildings exceeding 30 feet or three stories in height shall have not fewer than two means of fire apparatus access for each structure.	OFC D104.1
	☐	Buildings 30 feet or more in height shall provide aerial access: A 26’ wide x 100’ long set-up zone, located 15-30’ from, and parallel to, the side of the building, with no obstructions between the truck and the building (overhead lines, trees, etc.).	OFC D105
	☐	The grade of a required aerial access road shall not exceed 8%.	OFC D103.2
Addressing	☐	The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Temporary address identification shall be provided in *approved* locations to facilitate emergency response.	OFC 505.1
	☐	Where access is by means of a private road and the building cannot be viewed from the *public way*, a monument, pole or other sign or means shall be used to identify the structure.	OFC 505.1
	☐	Streets and roads shall be identified with temporary signs. Signs shall be weather resistant and be maintained until replaced by permanent signs.	OFC 505.2
Water Supply	☐	Maximum fire flow demand 3,000 gpm	OFC B106.2
	☐	Adequate hydrants for the flow required. OFC Appendix C, Table C102.1	OFC C102
	☐	Hydrant spacing 400’	OFC C102.1
	☐	All portions of the exterior of the building shall be within 400’ of a hydrant, approved route (600’ for fire sprinklers)	OFC 507.5.1
	☐	A hydrant shall be located on the street frontage within 225’ of the building. OFC Appendix C, Table C102.1	OFC C102
	☐	A hydrant shall be located within 100’ of the FDC/standpipe	OFC 507.5.1.1
	☐	FDC shall be located 40 feet from, and on the corner of, the structure	OFC 912.2
	☐	Immediate access to fire department connections shall be maintained at all times	OFC 912.4
	☐	The exterior wall mounted waterflow strobe/horn/bell shall be in the line of site of the FDC serving the building.	OFC 912.2
	☐	Unobstructed access to fire hydrants shall be maintained at all times.	OFC 507.5.4
	☐	Where fire hydrants or FDC’s are subject to impact by a motor vehicle, guard posts shall be installed	OFC 507.5.6
ERRC		Emergency responder radio coverage shall be provided in the following buildings and locations:	OFC 510.1.1
	☐	Any building with one or more basement or below grade building levels.	OFC 510.1.1
	☐	Any underground building.	OFC 510.1.1
	☐	Any building more than five stories in height.	OFC 510.1.1
	☐	Any building 50,000 square feet in size or larger.	OFC 510.1.1
	☐	Any building that, through performance testing, does not meet the requirement of Section 510.	OFC 510.1.1
	☐	The ERRC system shall be monitored by a listed fire alarm control unit.	OFC 510.4.2.5
	☐	See ERRC Checklist for system details and requirements	

Pre-Development Checklist
(Continued)

Fire Suppression Systems	☐	NFPA 13 – Commercial Building Automatic Fire Sprinkler Systems	OFC 903.3.1.1
	☐	NFPA 13R – Multi-Family Residential Automatic Fire Sprinkler Systems	OFC 903.3.1.2
	☐	NFPA 13D – Single Family Residential Automatic Fire Sprinkler Systems	OFC 903.3.1.3
	☐	Fire Sprinkler Underground Piping Permit for deferred submittals	
	☐	Alternative Fire Suppression System	OFC 904
	☐	The fire pump shall be protected against possible interruption of service through damage caused by explosion, fire, flood, earthquake, rodents, insects, windstorm, freezing, vandalism and other adverse conditions. Rooms where fire pumps are located shall be separated from all other areas of the building. Circuits supplying fire pumps shall be protected.	OFC 913.2
	☐	A manual actuation device shall be located near a means of egress, and 10'<x<20' from the kitchen exhaust system. The manual actuation device shall be installed 42-48" above the floor, and shall clearly identify the hazard protected.	OFC 904.12,1
	☐	The actuation of the fire extinguishing system shall automatically shut down the fuel or electrical power supply to the cooking equipment. The fuel and electrical supply reset shall be manual.	OFC 904.12.2
	☐	Each required Type I hood shall be protected with an *approved* automatic fire-extinguishing system. Where a building fire alarm system is installed, automatic fire-extinguishing systems shall be monitored by the building fire alarm system (904.3.5).	OFC 904.2.2
	☐	Private fire service mains and appurtenances shall be installed in accordance with NFPA 24.	OFC 507.2.1
Fire Alarm Systems	☐	Addressable Alarm systems Each floor shall be zoned separately and a zone shall not exceed 22,500 square feet. The length of any zone shall not exceed 300 feet in any direction. Zoning indicator panel and the associated controls shall be provided in an *approved* location. The visual zone indication shall lock in until the system is reset and shall not be canceled by the operation of an audible alarm- silencing switch.	OFC 907.6.4
	☐	Access shall be provided to each fire alarm device and notification appliance for periodic inspection, maintenance and testing.	OFC 907.6.5
	☐	The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in NFPA 72.	OFC 907.5.2.2.5
	☐	Valves controlling the water supply for *automatic sprinkler systems*, pumps, tanks, water levels and temperatures, critical air pressures and waterflow switches on all sprinkler systems shall be electrically supervised by a *listed* fire alarm control unit	OFC 903.4
	☐	Fire alarm systems required by this chapter or by the *OFC* shall be monitored. Type I Hoods & ERRC systems shall be connected to monitored fire alarm systems (904.3.5 & 510.4.2.5).	OFC 907.6.6
	☐	Automatic fire detectors installed for elevator emergency operation shall be installed in accordance with the provisions of the *Elevator Code* and NFPA 72.	OFC 907.3.3
	☐	For carbon dioxide enrichment systems with more than 100 pounds, a gas detection system shall be provided in rooms in which the carbon dioxide enrichment process is located. Carbon dioxide sensors shall be located within 12 inches of the floor.	OFC 5307.4.3
	☐	Annunciators shall be installed at an *approved* on-site location.	OFC 907.6.3.1
	☐	Emergency power systems shall automatically provide secondary power within 10 seconds after primary power is lost. Emergency power systems and standby power systems shall be designed to provide the required power for a minimum duration of 2 hours.	OFC 1203.1
	☐	Elevators that are part of the egress system shall have back-up power.	OFC 1203.2.2
	☐	ERRC shall have emergency power	OFC 1203.2.3
	☐	Fire pump shall have emergency power.	OFC 913.2
High Piled Storage	☐	High Piled Combustible Storage. Fire department access doors, aisles and *exit* doors shall not be obstructed.	OFC 3205.4
	☐	A visual method of indicating the maximum allowable storage height shall be provided.	OFC 3205.6
	☐	Fire apparatus access roads shall be provided within 150 feet of all portions of the *exterior walls* of buildings used for high-piled storage.	OFC 3206.6
	☐	Where exterior walls surrounding *high-piled storage areas* face fire apparatus access roads, such walls shall be provided with fire department access doors. Fire department access doors shall be labeled on the exterior side with the following: FIRE DEPARTMENT ACCESS DOOR DO NOT BLOCK. The lineal distance between adjacent fire department access doors shall not exceed 125 feet.	OFC 3206.7
Key Box	☐	A key box is required for all structures with fire suppression systems and fire alarm systems.	OFC 506.1
	☐	Additional key boxes may be required for buildings with large perimeter footprints or obstructions to 360 degree access.	OFC 506.1
AST	☐	Above Ground Storage Tanks shall have some form of secondary containment.	OFC 2306.5
	☐	Vehicle impact protection shall be provided for above ground storage tanks.	OFC 2306.4
AM&M	☐	An alternative material or method shall provide the equivalent of that prescribed in the OFC in quality, strength, effectiveness, fire resistance, durability and safety.	OFC 104.9
Notes	☐		
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CFD Operational Permits

CMC Section 8.03.500 Fire Permit Fees

☐	Aerosol Products, Level 2 or 3 > 500 lbs0	$80
☐	Aviation Facilities, Group H or S used for repair or fuel-servicing	$80
☐	Battery Systems, Stationary Lead-Acid > 50 gal	$80
☐	Cannabis or Hemp Growing, Processing, or Retail Sales	$80
☐	Cellulose Nitrate Film, in Group A Occupancies	$80
☐	Combustible Dust-Producing Operations	$80
☐	Combustible Fiber Storage or Handling > 100 cf	$80
☐	Compressed Gas System Installation, Repair, Removal or Modification	$80
☐	Cryogenic Fluids	$80
☐	Dry Cleaning Plants	$80
☐	Emergency Responder Radio Coverage/Reinspection Fee	$1,000/$500
☐	Explosives, Manufacture, Storage, Handling, Sale or Use	$80
☐	Fire Alarm Installation, Removal, Repair, or Modification	$80
☐	Fire Hydrant Installation, Repair, Removal, or Modification	$80
☐	Fire Pump Installation, Repair, Removal, or Modification	$80
☐	Fire Standpipe Installation, Repair, Removal, or Modification	$80
☐	Auto Fire Extinguishing System Installation, Repair, Removal, or Modification, < 20 Heads	$80
☐	Auto Fire Extinguishing System Installation, Repair, Removal, or Modification, 20-100 Heads	$80
☐	Auto Fire Extinguishing System Installation, Repair, Removal, or Modification, >100 Heads	$80
☐	Auto Fire Extinguishing System Installation, Repair, Removal, of Modification, Special Agent	$80
☐	Auto Fire Extinguishing System Installation, Repair, Removal, or Modification, Commercial Kitchen	$80
☐	Flammable/Combustible Liquids, Installation, Repair, Removal, or Modification	$80
☐	Floor Finishing > 350 sf using Class I or II Liquids	$80
☐	Fruit/Crop Ripening	$80
☐	Fumigation/Thermal Insecticidal Fogging (commercial)	$80
☐	Hazardous Materials Installation, Repair, Removal, or Modification	$80
☐	Hazardous Materials, use or handling in excess of the amounts listed in OFC Table 105.6.20	$80
☐	High-Piled Combustible Storage, > 500 sf	$80
☐	Hot Work, Welding or Cutting Operations	$80
☐	Industrial Oven Installation, Repair, Removal, or Modification	$80
☐	Lumber Yards/Woodworking Plants > 100,000 bd ft	$80
☐	Liquid- or Gas-Fueled Vehicles/Equipment in Assembly Buildings	$80
☐	LP Gas Storage, Repair, Removal, Installation or Modification	$80
☐	Magnesium Working	$80
☐	Miscellaneous Combustible Storage > 2,500 cf	$80
☐	Mobile Food Preparation	$80
☐	Motor Vehicle Dismantler	$80
☐	Organic Coatings, Manufacture > 1 gal per day	$80
☐	Plant Extraction Systems	$80
☐	Pyroxylin Plastics, storage or handling > 25 lbs	$80
☐	Refrigeration Equipment	$80
☐	Repair Garages/Motor Fuel-Dispensing	$80
☐	Rooftop Heliports	$80
☐	Spray Booth/Room, Dip Tank Installation, Repair, Removal, or Modification	$80
☐	Tents > 700 sf, for Non-sided Canopies, > 400 sf, Sided Tents and Temporary Membrane Structures	$80
☐	Tire Rebuilding Plants	$80
☐	Tire Storage (Scrap) > 2,500 cf	$80
☐	Waste Handling Facilities, Junkyards, and Wrecking Yards	$80
☐	Wood Products Storage > 200 cf	$80

Corvallis Fire Code References

- **2019 Corvallis Fire Code**: *Formal adoption of the 2014 Oregon Fire Code with some local interpretations*
- **2019 Oregon Fire Code**
- **2016 NFPA 13**: *Standard for the Installation of Sprinkler Systems*
- **2016 NFPA 13R**: *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*
- **2016 NFPA 13D**: *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*
- **2016 NFPA 14:** *Standard for the Installation of Standpipe and Hose Systems*
- **2013 NFPA 72**: *National Fire Alarm and Signaling Code*
- **2014 NFPA 96:** *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*
- **2019 Corvallis Fire Prevention Department Plan Review Guide**: *Users Guide for Access and Water Supply*

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Fire Department Access

Fire Department Apparatus Access

Standard
Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within a jurisdiction (OFC 503.1.1).

Specifications

1. The fire apparatus access roads shall comply with the requirements of OFC Section 503 & Appendix D, and as defined by this Guide.

2. *Construction documents* for proposed fire apparatus access, location of *fire lanes*, security gates across fire apparatus access roads and *construction documents* and hydraulic calculations for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction (OFC 501.3).

3. Where fire apparatus access roads or a water supply for fire protection are required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction. Temporary street signs shall be installed at each street intersection where construction of new roadways allows passage by vehicles in accordance with Section 505.2. (OFC 501.4).

4. New and existing buildings shall be provided with *approved* address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification shall be provided in additional *approved* locations to facilitate emergency response (OFC 505.1).

5. Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Section 503.2.1 shall be maintained at all times (OFC 503.4).

6. Traffic calming devices shall be prohibited unless approved by the fire code official. (OFC 503.4.1)

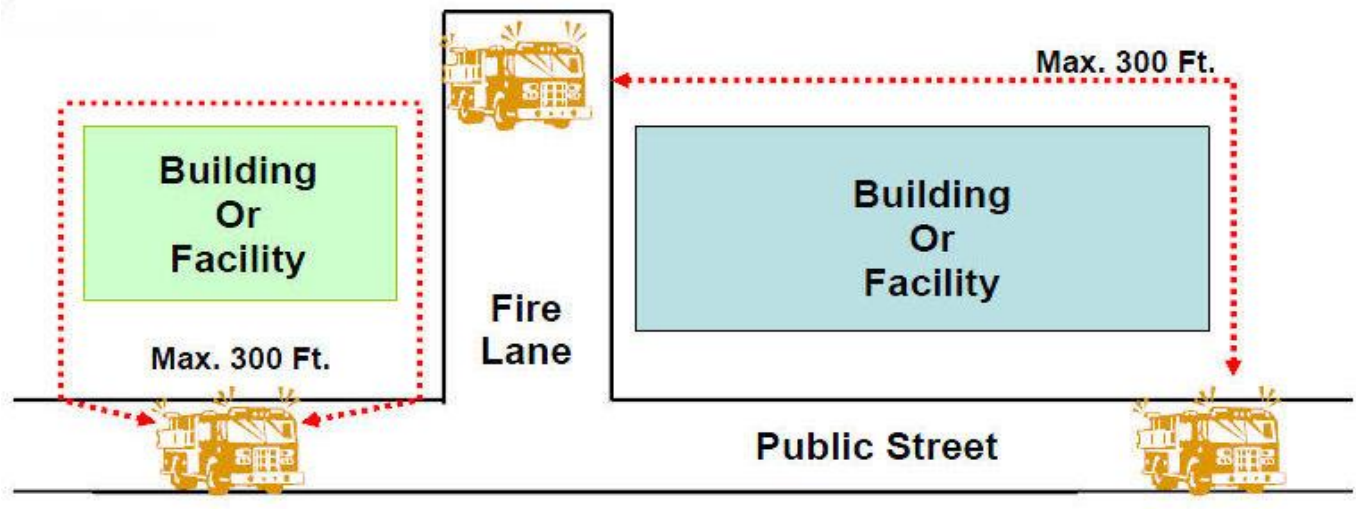
Alternative Method & Materials

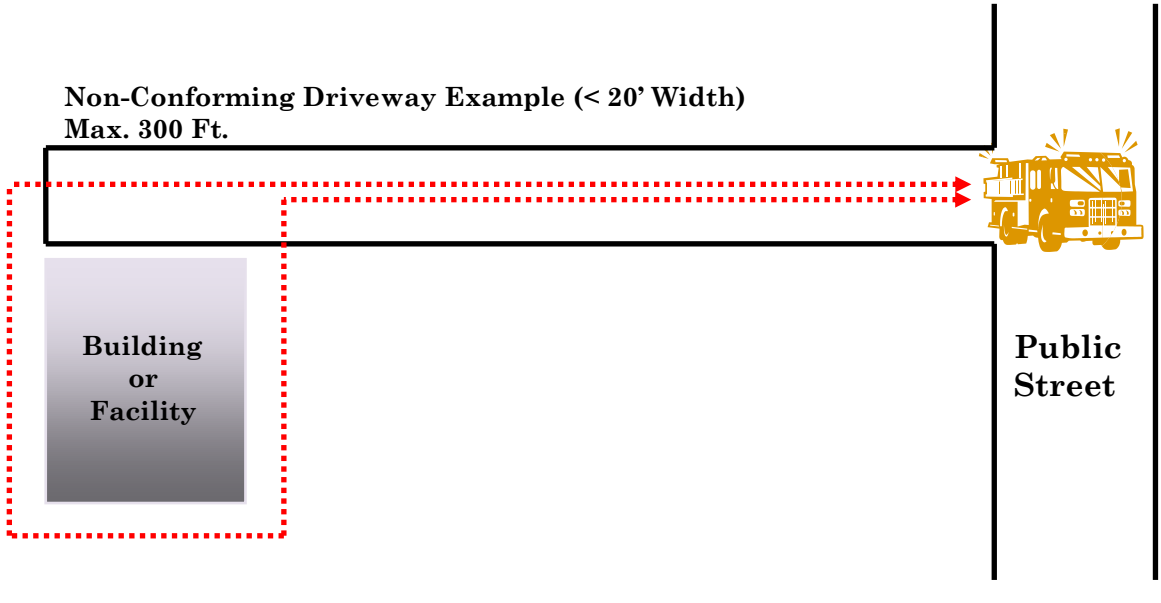
a. Fire apparatus access roads and specifications are allowed to be modified by the Corvallis Fire Marshal where any of the following conditions apply:
    a. The building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3 (OFC 503.1.1, Exception 1.1).
    b. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades, or similar conditions, and an *approved* alternative means of fire protection is provided (OFC 503.1.1, Exception 1.2).
    c. There are not more than two Group R-3 or Group U Occupancies (OFC 503.1.1, Exception 1.3), and all other fire department access provisions are met.

Proximity of Buildings to Fire Apparatus Access Roads

Standard:
The fire apparatus access road shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building, as measured by an approved route around the exterior of the building or facility (Oregon Fire Code 503.1.1).

Specifications:
An approved route follows the outline of a building and is not closer than 10 feet from the nearest edge of the building, on an approved *walking* route. This route may not be encumbered by fences or walls, and follows a route where fire hoses may be deployed during fire operations.





Multiple Fire Apparatus Access Roads & Road Separation

Standard:
More than one fire apparatus access road may be required, based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access. Access roads shall be located as required by the fire code official (OFC 503.1.2**)**.

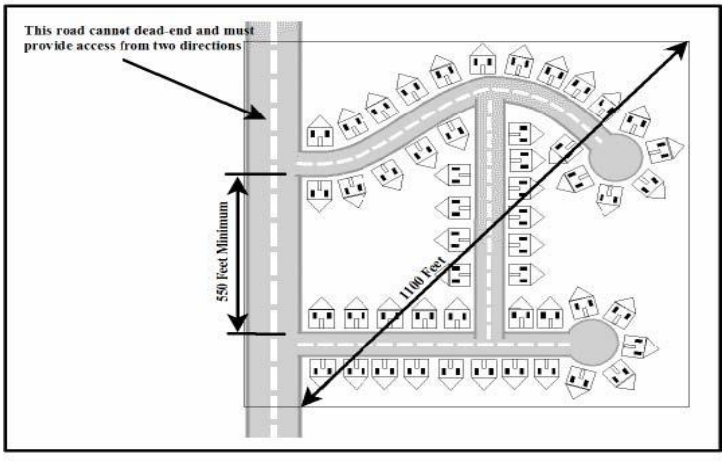
Specifications: (OFC Appendix D)

1. Two separate and *approved fire apparatus* access roads are required under the following conditions:
   a. One- and two-family dwellings (Group R-3) where there are more than 30 dwelling units, with an exception for installation of automatic fire sprinkler systems (OFC Appendix D107.1).
   b. Multiple-family residential developments (Group R-2) having more than 100 dwelling units. With an exception for installation of automatic fire sprinkler systems (OFC Appendix D106.1).
   c. Multiple-family residential developments (Group R-2) having more than 200 dwelling units regardless of whether they have an approved automatic fire sprinkler system installed within each structure (OFC Appendix D106.2).
   d. At commercial or industrial developments with buildings or facilities having a gross building area of more than 62,000 square feet (OFC Appendix D104.2).
   e. At commercial or industrial developments with buildings or facilities having a gross building area of more than 124,000 square feet where all buildings have an approved automatic fire sprinkler system installed within each structure (OFC Appendix D104.2, Exception).
   f. At commercial or industrial developments with buildings exceeding three stories or 30 feet in height (OFC Appendix D104.1).
   1. When in the opinion of the Corvallis Fire Marshal the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access (OFC 503.1.2**)**.

2. Access roads shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses (OFC Appendix D104.3).

3. The access roads shall enter onto a road that has access from two different directions.

4. The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access road will connect with future development unless approved by the fire code official (OFC Appendix D107.1, Exception 2).



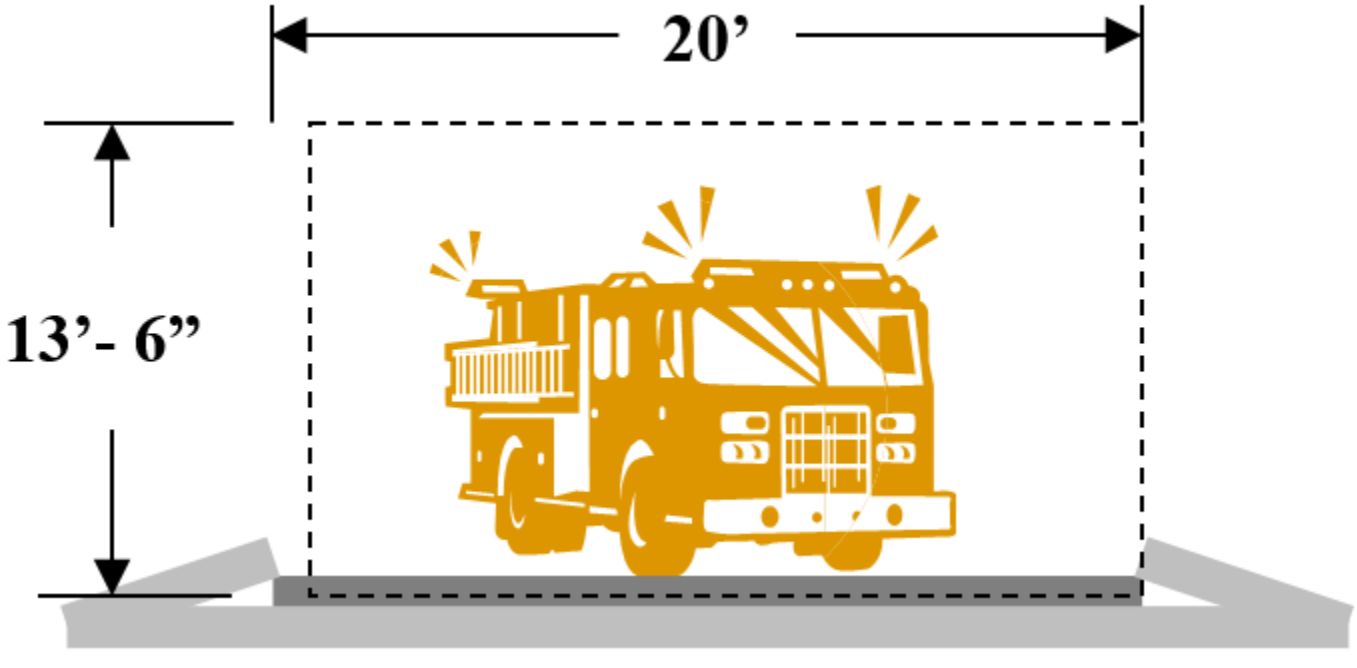
Fire Apparatus Access Road Widths and Vertical Clearances

Standard:
All fire apparatus access roads must have a drivable surface for fire vehicle travel that is wide enough to allow their full, complete, and instant use during fire and other emergencies (OFC 503.2.1).

Specifications:

1. Fire lanes and private roads shall have an unobstructed width of not less than 20 feet.

2. All fire apparatus access roads must have an unobstructed height of not less than 13 feet, 6 inches.



Fire Apparatus Access Road Surfaces and Load Capacities

Standard:
Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities (OFC 503.2.3 & Appendix D102.1).

Specifications:
1. Fire apparatus access roads shall be constructed of an all-weather surface (asphalt concrete, or other approved driving surface) that meets the following:
    a. Easily distinguishable from the surrounding area by markings acceptable to the fire code official. Markings may include plantings, signs, or other arrangements acceptable to delineate the limits of fire access driving surfaces.
    b. Capable of supporting not less than a **75,000 pound live load** (gross vehicle weight).
    c. The weight limit specified in section 1(b) above may be increased based upon the actual weight of fire apparatus serving the location.
    d. A **point load of 8,000psf** shall be considered when designing aerial apparatus access roads which require the use of specialized jacking pads and outriggers.

2. Private roads and driveways must be constructed and maintained as designed.

3. Private driveways shall be constructed of an approved design, meeting the weight limits established above.

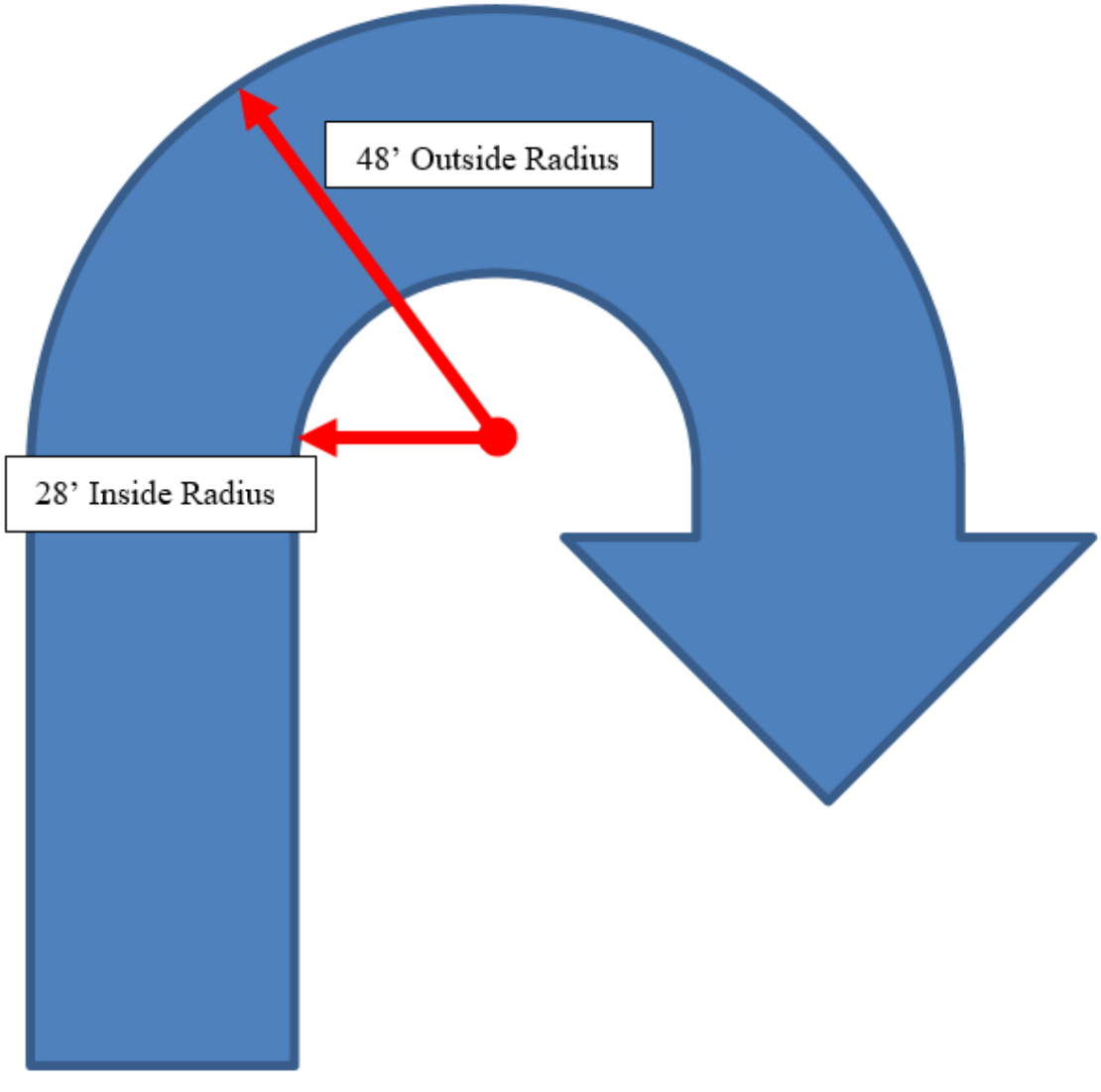
Fire Apparatus Access Road Turning Radius

Standard:
All fire department apparatus access roads shall be constructed with respect for the anticipated fire apparatus vehicles that will provide emergency services to the specific location under consideration.

Specifications: OFC Appendix Section D103.3.

1. The turning radius for access roads shall be as determined by the fire code official (OFC 503.2.4).
    a. The minimum inside turning radius shall not be less than 28 feet.
    b. The minimum outside turning radius shall not be less than 48 feet (minimum 96 foot diameter).

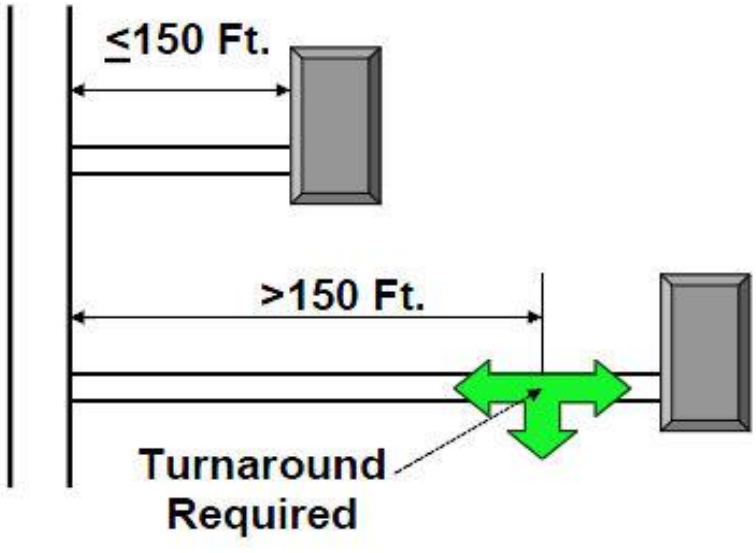
2. Both the inside and outside turning radius shall be measured from the same center point.

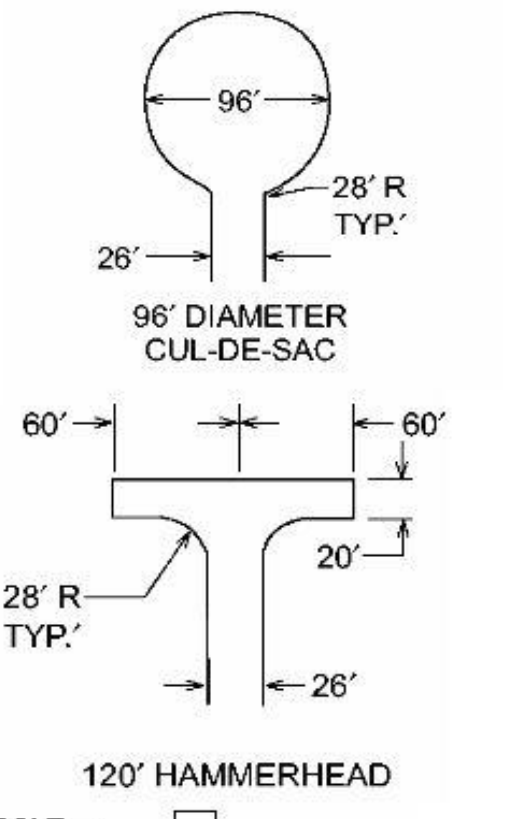


Fire Apparatus Access Road Dead-Ends and Turnarounds

Standard:
Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved area for turning around fire apparatus (OFC 503.2.4, 503.2.5).

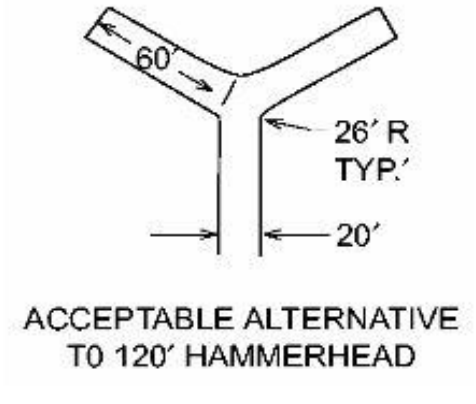
Specifications: OFC Appendix Section D103.4, & Table D103.4
An approved turnaround is required if the remaining distance to an approved intersecting roadway, as measured along the fire apparatus access road, is greater than 150 feet.



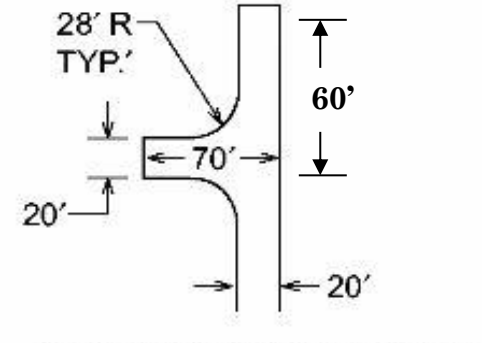


96′ DIAMETER
CUL-DE-SAC

120′ HAMMERHEAD



ACCEPTABLE ALTERNATIVE
T0 120′ HAMMERHEAD



ACCEPTABLE ALTERNATIVE
TO 120′ HAMMERHEAD

Turnouts on Private Driveways

Standard:
When a driveway exceeds 400 feet in length, turnouts shall be provided unless otherwise approved by the fire code official (OFC 503.1.1).

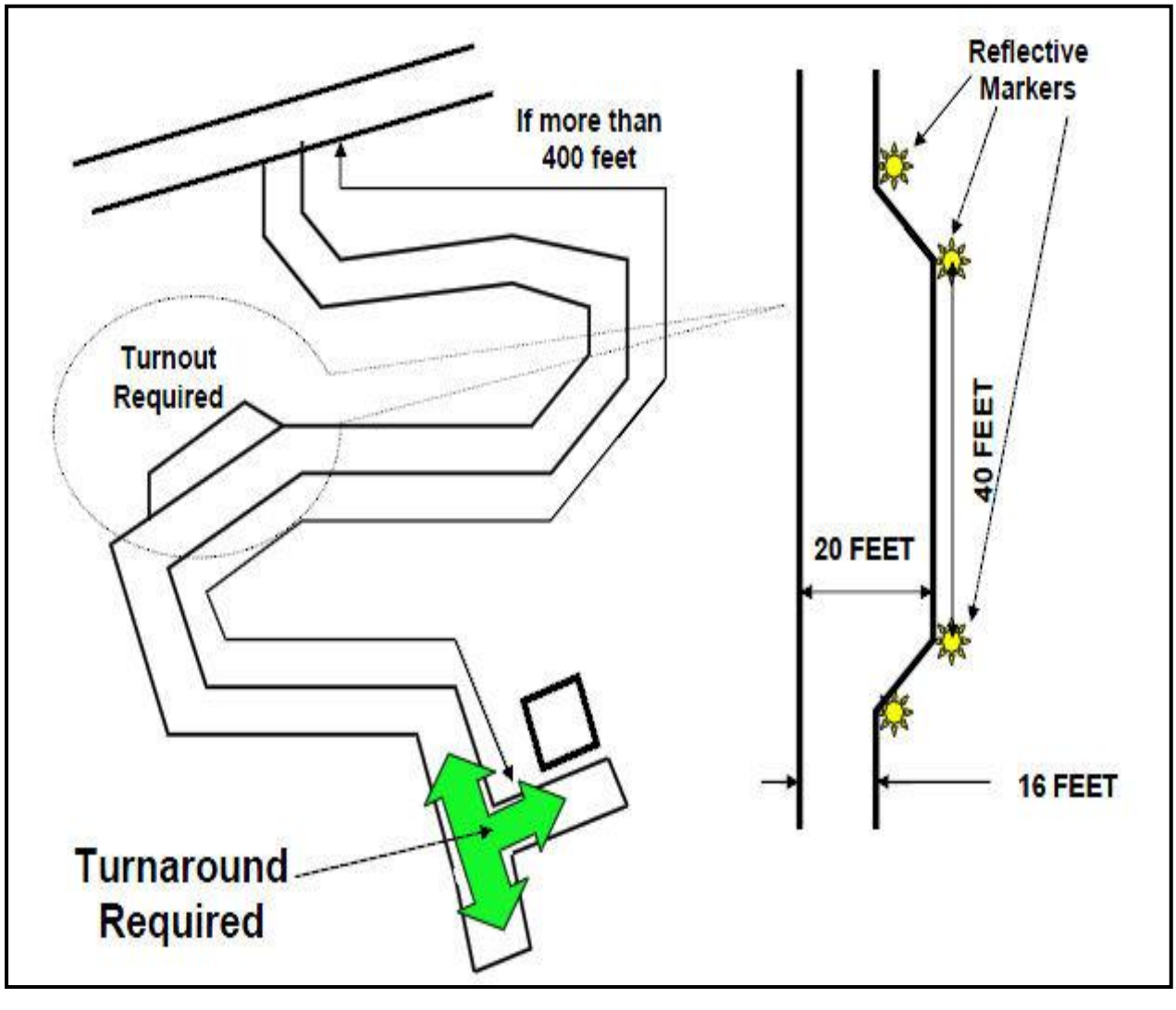
Specifications:

1. Turnouts shall be 20 feet wide and 40 feet long at the widest part.

2. Turnouts shall be located no more than 400 feet apart unless approved by the fire code official.

3. The distances between turnouts, road intersections, and turnarounds may have the length modified based on visibility and line-of-sight distances.

4. Visual indicators such as reflective markers shall be located to delineate the location and and extent of turnouts.



Fire Apparatus Access Road Grades and Angles of Approach & Departure

Standard:
The maximum grade for all fire apparatus access roads shall be within the limits established by the fire code official (OFC 503.2.7 & 503.2.8).

Specifications:
Maximum grade on Fire Apparatus Access Roads shall not exceed 10 percent (OFC D103.2).

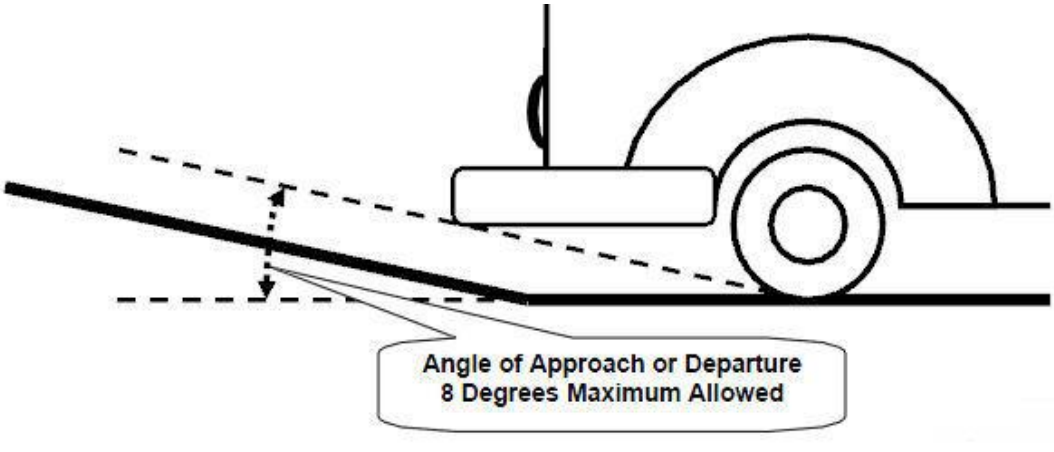
Exception: Maximum grade on Private Driveways and Private Roads shall not exceed 12 percent.

1. Where grades exceed 10% the fire code official is authorized to accept, under the provisions of ORS 455.610(5), an automatic fire sprinkler system meeting the provisions of NFPA 13D, 13R, or 13 to be installed within all habitable structures as an alternative to meeting these requirements.

2. Under no circumstances shall the maximum grade exceed 15 percent at any single point along the driving surface of any fire apparatus access road.

3. Intersections, turnarounds, and water bars shall be essentially level with crowning allowed for water run-off (maximum of 5 percent grade allowed).

4. Angles of approach, break-over (ramp-over), and departure at the interface to and from fire apparatus access roads, and where grades change, shall be not more than 8 degrees. The angle shall be measured from the adjacent road surface.



Aerial Apparatus Access (CMC Section 7.08.200)

OFC Section D105 as adopted by this Chapter is amended to add Sections D105.1, D105.1.1, D105.4, D105.5, and D105.5.1 as follows: *See also Plan Review Guide 11.1.2.3.9 Aerial Fire Apparatus Access Road Specifications*

D105.1 Where required. Building or portions of buildings or facilities exceeding 30 feet in height above the lowest level of fire department vehicle access shall be provided with approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway.

D105.1.1 Building height definition. For the purposes of Section D105.1 building height is measured from the lowest level of approved fire department vehicle access to the highest peak on the roof line.

D105.2 Width. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

D105.3 Proximity to Building. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the Fire Marshal.

D105.4 Obstructions. Overhead utility and power lines shall not be located over aerial fire apparatus access road or between the aerial fire apparatus road and the building. Other obstructions shall be permitted to be placed with the approval of the Fire Marshal.

D105.5 Modifications. For residential structures less than 40 feet in height as defined by Appendix D105.1.1, fire aerial apparatus access roads and specifications are allowed to be modified by the Fire Marshal where the following condition applies:

D105.5.1 Automatic fire sprinkler system. A building has been equipped with an automatic fire sprinkler system that was not prescriptively required by the 2014 OFC, OSSC, or ORSC. The system shall be installed in accordance with the provisions of NFPA 13, NFPA 13R, or NFPA 13D.

Intent:

The intent of this section is to ensure that minimum fire protection can be provided to new, or modified, structures exceeding 30 feet and less than 4 stories in height.

The D105.1 and D105.1.1 amendments are legacy codes from the 2010 OFC. CFD has used Appendix D in this capacity to ensure aerial access since the codes were adopted by the State in 2010. The amendments serve as a continuation of the locally adopted Departmental Operating Guidelines (DOG) that are crafted to match the capacity of the current Corvallis Fire Department resources with the rapidly changing needs of the community.

Historically the Corvallis Land Development Code has been in conflict with the Fire Department access provisions within Appendix D of the OFC; this CMC amendment offers an Alternative Method of compliance (AM&M) when the prescriptive requirements of the OFC cannot be met due to existing infrastructure or site design parameters.

Fire Prevention Division
Fire Plan Review Guide

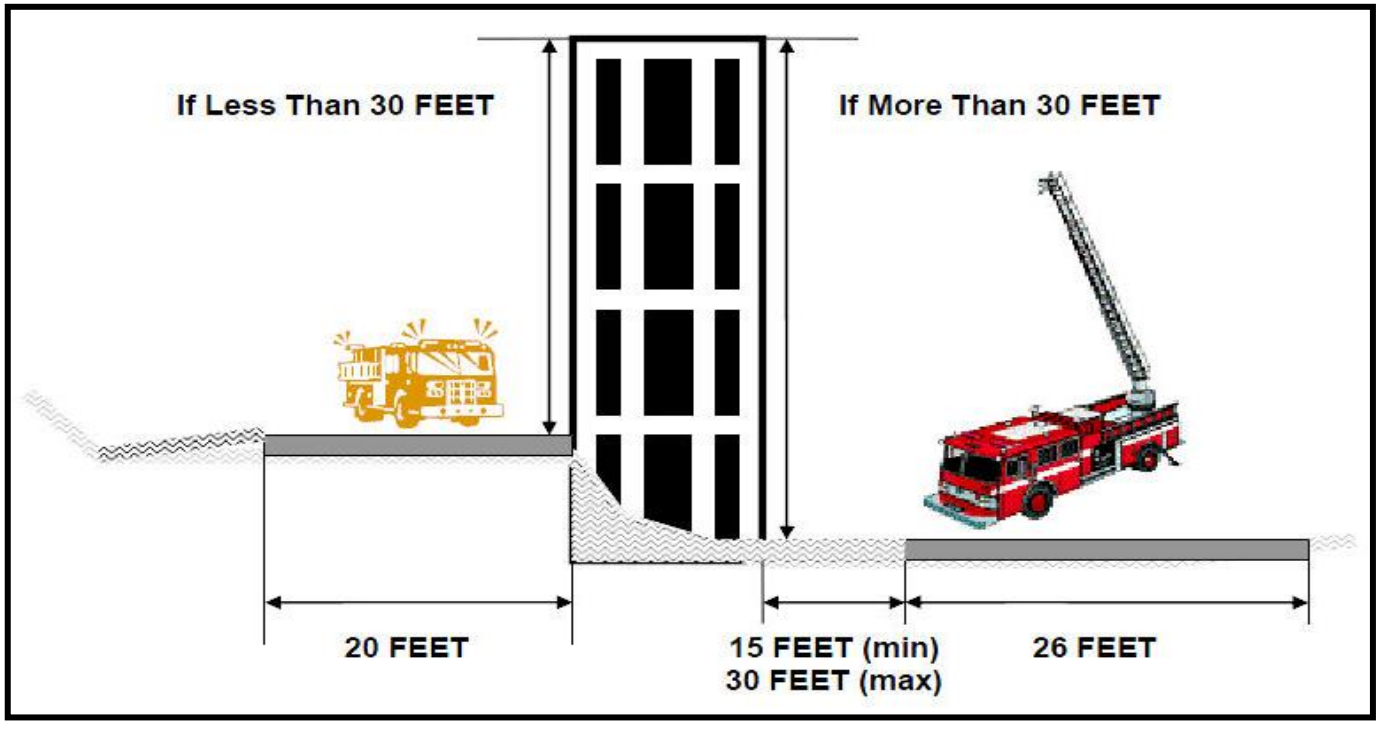
Aerial Fire Apparatus Access Road Specifications

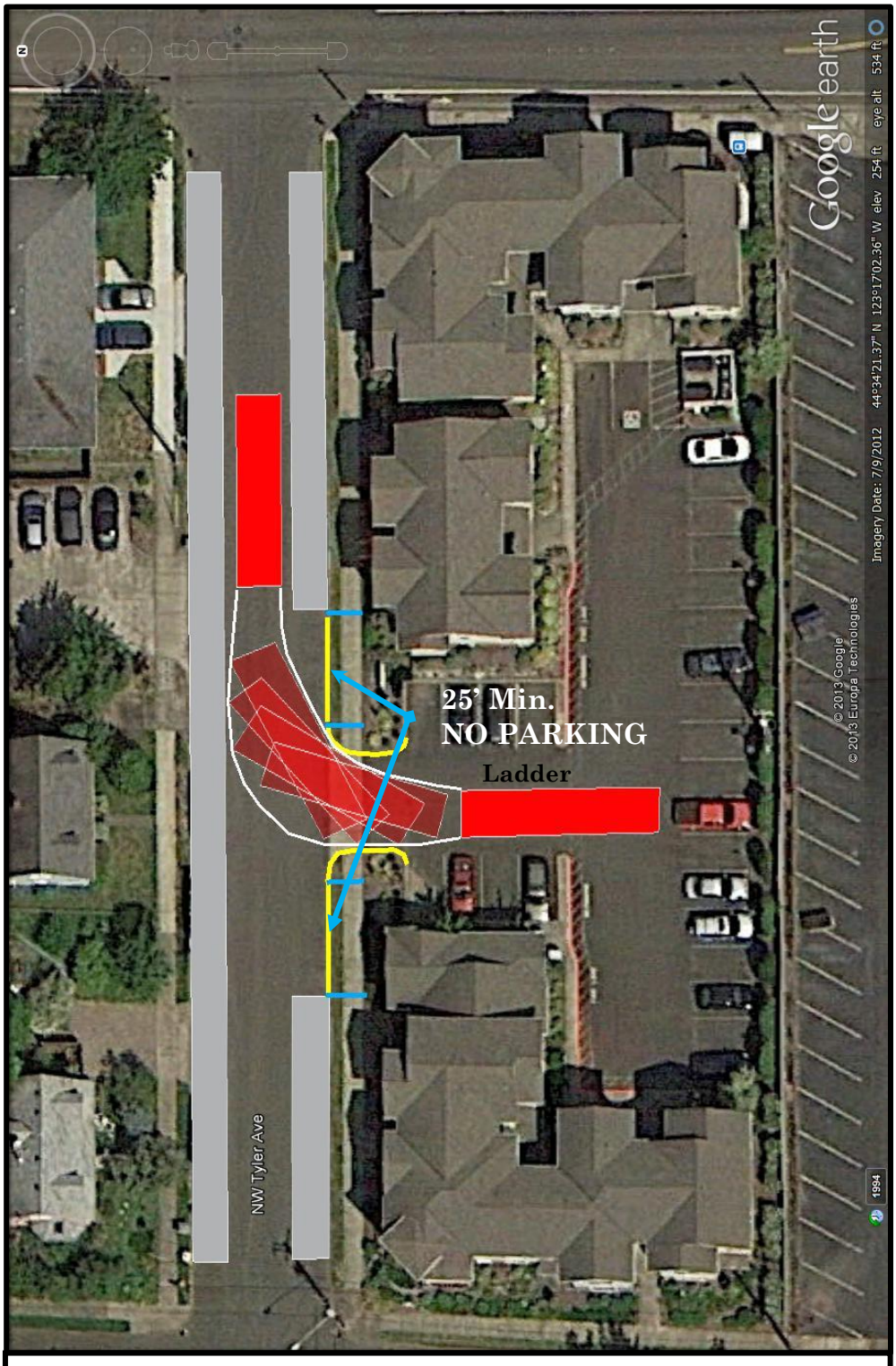
Standard:
Building or portions of buildings or facilities exceeding 30 feet in height above the lowest level of fire department vehicle access shall be provided with approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway (OFC 503.1, CMC 7.08.200).

If fire department access cannot be achieved on the public roadway, adequate access into the site must be provided in a method *approved by the Fire Marshal*. This may necessitate the removal of on-street parking to accommodate the fire apparatus turning radius.

Specifications: (OFC Appendix D105).

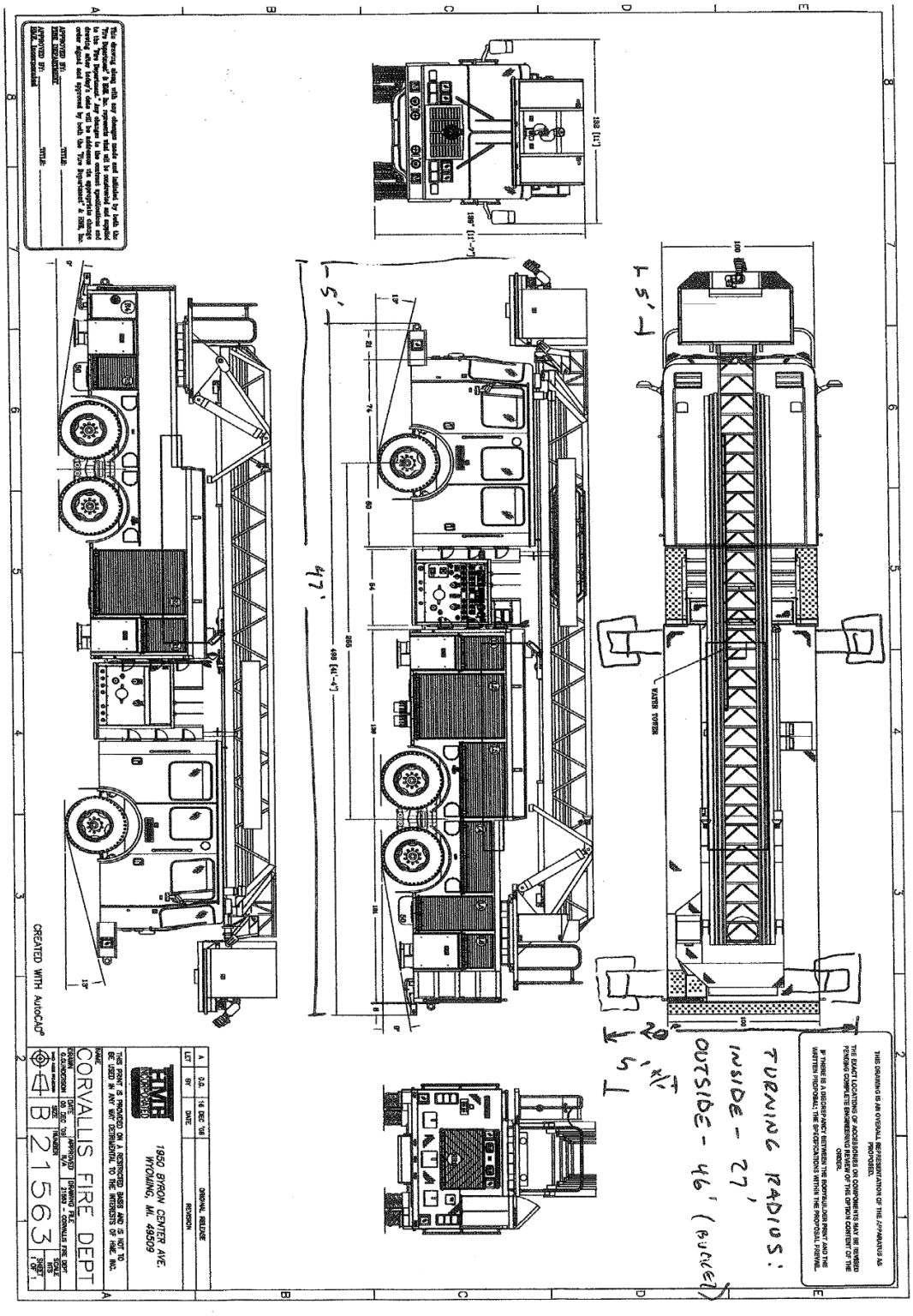
1. Aerial fire apparatus access roads shall have an unobstructed driving surface width of not less than 26 feet and shall be in the immediate vicinity of any building or portion of a building that is more than 30 feet in height.
2. At least one of the required fire apparatus access roads shall be located within a minimum of 15 feet and a maximum of 30 feet from the building and shall be positioned parallel to one entire side of the building.
3. The aerial apparatus set-up zone must be at least 100 feet in length, and in a location approved by the Fire Marshal.
4. The aerial access road shall have a load bearing capacity of 75,000 pounds, and a point load in the set-up area of 8,000psf.
5. Overhead utility and power lines shall not be located over aerial fire apparatus access road or between the aerial fire apparatus road and the building. Other obstructions shall be permitted to be placed with the approval of the *fire code official*.
    a. For buildings 4 stories or less in height fire aerial apparatus access roads and specifications are allowed to be modified by the *fire code official* when the building has been equipped with an automatic fire sprinkler system installed in accordance with the provisions of NFPA 13, NFPA 13R, or NFPA 13D.





Example Dimensions:
Street Width: 32 Feet *(The LDC Permits street widths down to 28 feet)*
Driveway Apron Width: 20 Feet
Parking Strip Width: 8 Feet
Ladder Truck Length: 47 Feet
Ladder Truck Width: 11-1/2 Feet

Aerial Apparatus Vehicle Dimensions

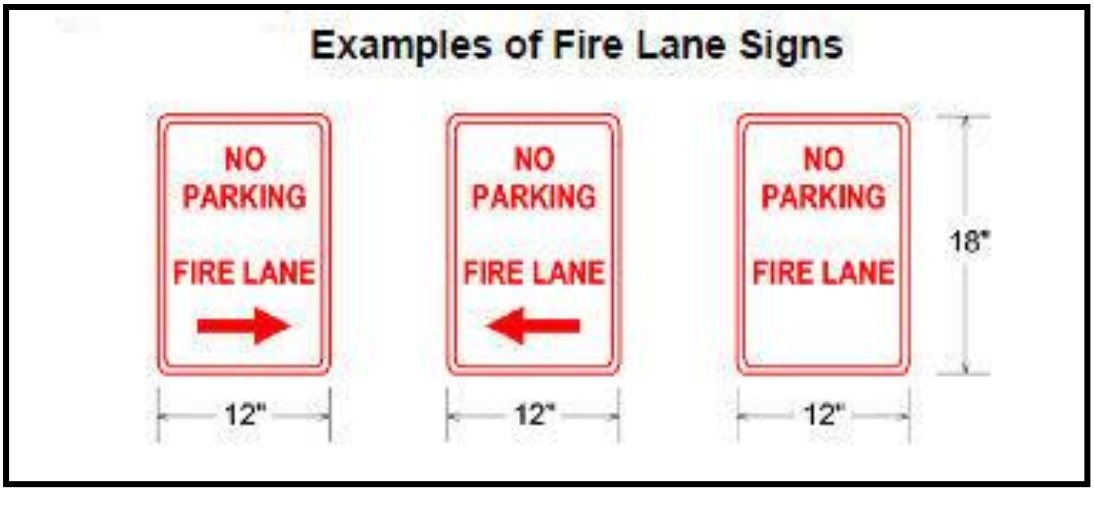


No Parking Signs & Painted Curbs

Standard:
Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Sections 503.2.1 and 503.2.2 shall be maintained at all times (OFC 503.4). Where required by the *fire code official*, *approved* signs or other *approved* notices or markings that include the words NO PARKING—FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which *fire lanes* are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility (OFC 503.3).

Specifications:
Signs shall comply with the current *Manual on Uniform Traffic Control Devices* adopted by the State of Oregon. Below are examples of acceptable signage.

1. Fire Lane signs shall be posted on both sides of fire apparatus access roads that are 20 feet wide.
2. Signs shall meet the specifications for the R7 series and shall have red writing on a white reflective background.
3. Signs shall be a minimum size of not less than 12 inches by 18 inches.
4. Signs shall be constructed of 0.080 thickness aluminum.
5. Reflective sheeting shall be high intensity prismatic or better.
6. Signs or markings shall be maintained in a clean and legible condition at all times and shall be replaced or repaired when necessary to provide adequate visibility.
7. In lieu of signs, other marking methods may be applied where approved by the Fire Marshal.
8. In lieu of signs, fire lanes curbs may be marked as follows:
    a. Curbs shall be painted a color approved by the Fire Marshal.
    b. Curbs shall have the words, “Fire Lane, No Parking” stenciled in paint
    c. Lettering shall be legible and shall contrast with the background color.



Gates on Fire Apparatus Access Roads

Standard:
The *fire code official* is authorized to require the installation and maintenance of gates or other *approved* barricades across fire apparatus access roads, trails or other access ways, not including public streets, alleys or highways (OFC 503.5).

Specifications: Refer to OFC Appendix Section D103.5 for specifications.

1. Gates shall be a minimum width of 20 feet wide for fire lanes and private roads. Gates shall be a minimum width of 16 feet for private driveways.

2. Gates shall be of either the swinging or sliding type and may be either a single or double section.

3. Construction of Gates shall be of materials that allow manual operation by one person.

4. Gates shall not reduce the minimum required width of the access road width when in a fully open position.

5. Where security gates are installed, they shall have an approved means of emergency operation and shall be maintained operational at all times (OFC 503.6).
    a. Electric gate operators, where provided, shall be *listed* in accordance with UL 325.
    b. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200 (OFC 503.5).
    c. Gates that are power operated shall require the installation of a means to open the gate when there is a loss of power to the gate operating device (OFC 503.6).

6. Gates and barricades shall be secured in accordance with the following:
    a. Gates secured with padlocks or chains and padlocks shall be capable of being opened by means of a Knox key, or with keys provided in a Knox Box installed at the gate location.
    b. All security devices shall allow opening without undue delay of fire apparatus during emergencies.

6. Gates shall be set back from roadways not less than 30 feet and shall swing into the roadway that is served.

7. Gates installed on private driveways, fire lanes, and other fire apparatus access roads shall not cause cross traffic to stop or create a hazardous traffic condition on the roadway when the access road is occupied by emergency apparatus or other large vehicles.

8. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.

Fire Apparatus Access during Construction Operations

Standard:
Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Fire apparatus access roads shall be approved by the fire code official prior to beginning construction or demolition of buildings. Roads shall meet the requirements of this guide (OFC 3310.1).

Specifications:

1. Temporary street signage and addressing shall be provided.

2. Approved vehicle access for firefighting and emergency medical service shall be provided to, and through, all construction or demolition sites (OFC 3310.1).

3. Construction roads exceeding 150 feet shall be equipped with a fire department turnaround.

4. Vehicle access shall be provided to within 100 feet of temporary or permanent fire department connections (NFPA 14 sec.6.4.5.4).

5. Vehicle access shall be provided by either temporary or permanent roads, with a load bearing capacity capable of supporting 75,000 pounds under all weather conditions.

6. Vehicle access shall be maintained until permanent fire apparatus access roads are available (OFC 3310.1).

7. All construction gates over roadways or obstructing water supplies shall have keyed Knox Padlock or other device approved by the fire department (OFC 3310.2).

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Addressing and Building Access

Premises Identification

Standard
New and existing buildings shall have *approved* address numbers, building numbers or *approved* building identification placed in a position that is plainly legible and visible from the street or road fronting the property (OFC Section 505.1).

Specifications

1. Streets and roads shall be identified with approved signs (OFC 505.2).

2. Address numbers shall be provided in additional *approved* locations to facilitate emergency response (OFC 505.1).

3. Address identification shall be maintained (OFC 505.1)

4. Address markings shall use Arabic numerals or alphabetic letters (OFC 505.1).

Temporary (OFC 505.2)

1. Temporary address signs shall be placed in a position that is plainly legible and visible from the street or road fronting the property.

2. Temporary signs shall be installed at each intersection when construction of new roadways allows passage of vehicles.

3. Temporary address signs shall be installed where there is undue difficulty with locating a given structure or facility during emergencies.

4. Temporary signs shall be of an approved size, weather resistant, and maintained until replaced by permanent signs.

5. Temporary address markings shall use Arabic numerals or alphabetic letters.

Addressing Signage

Residential – Single Family, Duplex, Mobile

1. Building addresses shall be a minimum of four inches (102 mm) in height, contrasting in color to the background, readily visible from the street, and located in an area with exterior lighting.

2. Where structures are set back more than 50' from the street, larger numbers shall be required.

3. In the event a structure is not visible from the street, the address numbers shall be posted adjacent to the driveway entrance as well as on the structure.

Apartments, Condominiums, Hotels, Motels

1. Building addresses shall be a minimum of six inches (152 mm) in height, with a stroke of not less than ¾ inch (19 mm), contrasting in color to the background, readily visible from the street, and illuminated during the hours of darkness. This may require addresses in more than one location on the building.

2. Where structures are set back more than 150' from the street, larger numbers shall be required.

3. Each individual unit number shall be above or adjacent to the entrance door. If displayed adjacent to the entry door, it shall be on the exterior wall side that will allow the digits to remain visible even when the door is in the fully open position.
    a. Unit numbers shall be a minimum of four inches (102 mm) in height, contrasting in color to the background and readily visible.

4. Individual unit numbers shall be 3 digits, with the first digit identifying floor level, the following two positions identifying sequential unit numbers located on that level. As viewed from side where the individual apartment entry doors are accessed and visible, the numbering shall start on the left and increase numerically as you read/view to the right.

Building Level	Room/Space Identification			
Floor 3	**301**	**302**	**303**	**304**
Floor 2	**201**	**202**	**203**	**204**
Mezzanine	**M101**	**M102**	**M103**	**M104**
Floor 1	**101**	**102**	**103**	**104**
Basement Floor 01	**B101**	**B102**	**B103**	**B104**

Commercial/Industrial

1. Building address shall be a minimum of six inches (152 mm) in height with a stroke of not less than ¾ inch (19 mm), contrasting in color to the background, readily visible from the street, and illuminated during the hours of darkness.

2. Where structures are set back more than 150' from the street, larger numbers shall be required. In the event a structure is not visible from the street, the address numbers shall be posted adjacent to the driveway entrance as well as on the structure.

3. Suite numbers shall be above or adjacent to the primary entrance door.
    a. Suite numbers shall be a minimum of four inches (102 mm) in height, contrasting in color to the background and readily visible.

4. Multiple occupancies with rear doors shall also provide suite numbers above or adjacent to the rear door.
    a. Rear door numbers shall be a minimum of four inches (102 mm) in height, contrasting in color to the background and readily visible.

Directory Map

1. Address directory maps shall be provided at each entrance into a complex containing six or more buildings and 36 individual units.

2. Maps shall show all streets, driveways, building numbers, unit numbers, a notation “you are here,” and any additional information that would assist in locating individual units.

3. It is suggested that this directory map be island mounted so that it is on the driver’s side of an approaching vehicle and that the directory island or turnout is so designed that a vehicle stopped at the directory map does not block vehicle access to the complex.

Directory Map Dimensions

1. Set back two feet (0.6 m) from the curb, facing the driveway. Minimum size: 3' X 2' (0.91 m X 0.6 m).

2. Individual unit numbers: 1/4 inch (6.4 mm) in height. Building numbers: 3/8 inch (9.5 mm) in height.
3. Lettering: ½ inch (12.7 mm) in height.

4. During the hours of darkness, the map shall be illuminated or located in an illuminated area.

5. These numbers shall contrast with their background. Where required by the *fire code official*, Address numbers shall be Arabic numbers or alphabetical letters.

6. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm).

7. Where access is by means of a private road and the building cannot be viewed from the *public way*, a monument, pole or other sign or means shall be used to identify the structure.

Development Services Addressing Policy

This Policy will define the method by which City staff will assign building addresses for both commercial and residential buildings. For the purposes of addressing buildings, the following definitions shall apply:

Definitions

Fire Wall – As defined in Section 702 of the Oregon Structural Specialty Code (OSSC), a fire-resistance-rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

Suite – An individual commercial tenant space contained within a larger building. Suites are typically separated by demising walls and in some instances can be separated by "fire walls", as defined in Section 702 of the Oregon Structural Specialty Code (OSSC). Suite numbers are assigned to commercial, industrial, and civic use types. Suite numbers are assigned in a manner consistent with the Fire Department's Operating Guidelines (DOGs). First time suite assignments will be assigned numbers that are ten (10) digits apart so that future modifications to buildings that add additional tenant spaces can be assigned suite numbers.

Unit - A unit is a single dwelling unit providing complete independent living facilities for one or more persons. Unit numbers are assigned to residential development. Unit numbers shall be numeric, with unit numbers being assigned from left to right, as identified in the DOGs.

Commercial Buildings

Single-tenant detached buildings

A single-tenant commercial building will be assigned a single street address. If the single-tenant commercial building is located on a corner lot or within a business park, the main entrance/access will determine the street from which the building shall be addressed. Buildings located within a business park development served by a common access drive shall install a directory map at the entrance, which lists the addresses of the buildings within the business park. The directory map shall be constructed and located in accordance with the Fire Plan Review Guide.

Multistory, multi-tenant buildings

Multi-story, multi-tenant occupied buildings will be assigned a single street address. Each tenant space shall be assigned a suite number. In the case of a mixed-use building that includes residential units on the upper stories, each dwelling will be assigned a unit number as defined in the Residential Buildings section below. If a tenant occupies the basement of a building, a unit number will be assigned beginning with the letter "B".

Strip mall type development with multiple tenants

Strip mall buildings with more than one tenant space will be assigned a single street address for each building followed by individual suite numbers for each tenant. One building with separate tenant spaces divided by a fire wall that have their own independently functioning fire systems may be assigned its own street address as discussed above.

Residential Buildings

Single-Family Dwelling

Single-family dwelling units, which are freestanding and structurally detached, will be assigned their own street address. This includes multiple individual dwellings arranged in a cottage configuration, on an individual lot, or development site.

Accessory Dwelling Units

ADUs are considered ancillary to the primary residence. The main home shall retain the street address and the ADU shall be assigned a unit number. If the ADU is located within the basement of the primary residence, a unit number will be assigned beginning with the letter "B".

Duplex

A duplex will be assigned one street address. Each unit will be assigned its own unit number.

Townhouses (3 or more dwelling units)

Townhouses will be assigned one street address per building. Each individual dwelling will be assigned an individual unit number. Townhouses arranged with each unit located on its own legal lot (sometimes referred to as a zero lot line home) would each be assigned its own street address.

Apartments

Single apartment buildings will be assigned one address per building. Apartment buildings that are designed with interior hallways/corridors as the primary pedestrian access shall use the same methodology noted in the Fire DOG for assigning floor levels. Additionally, individual units will be numbered in ascending order in a clock-wise direction. Most central hallways have doorways on both sides. Even unit numbers shall be on one side of the hallway with odd numbered units on the other, consistent with the methodology for addressing streets.

Options

If private streets are developed during construction and approved for public use, commercial buildings may be addressed using the private street name. Private streets shall be provided with street signs clearly identifying the name of each street and shall be constructed to public street standards that allow emergency access. See POL 1080 for addressing protocol.

This policy is not intended to preclude the building owner from requesting other options if it can be established that the situation is unique and warrants further review. Such requests shall be submitted in writing and shall include the reason for the proposal and the justification necessary for consideration.

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Key Boxes

Standard

Where access to or within a structure or an area is restricted because of secured openings, or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed (OFC 506.1).

1. The approved CFD key box and related security devices (HazMat cabinets, pad locks, and key operated switches) are produced by the Knox Company: http://www.knoxbox.com/

2. The operator of the building shall immediately notify the fire code official and provide the new key when a lock is changed or rekeyed. The key to such lock shall be secured in the key box (OFC 506.2).

3. More than one key box may be required in large buildings to facilitate emergency access.

Knox Box Contents

1. When more than one (1) key is secured in the Knox Box, each key shall each be legibly identified as to its use, utilizing a round key tag a minimum of one (1) inch in diameter. Necessary keys provided by the building owner or business owner may include:
    a. Main entrance door and all interior doors
    b. Fire Alarm Control Panel
    c. Alarm Codes (may be stored with FACP)
    d. Manual Pull Stations
    e. Fire Sprinkler Control Padlock/s
    f. Mechanical Rooms
    g. Elevator Control
    h. Attic or Roof Access
    i. Any Other Keys Necessary to Access Building Controls

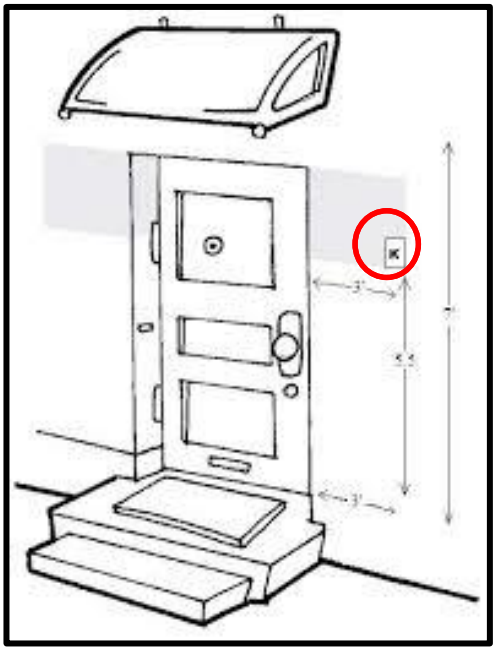
All keys stored in the Knox Box should be hung on the key hooks supplied with the vault. Keys placed on the floor of the vault will rust and also may jam the locking mechanism.

Structure Specifications

1. A Knox Box is required on all new buildings that are protected by a fire sprinkler system (except single and duplex dwellings) and/or automatic fire alarm systems (except for single and duplex dwellings).

2. The Knox Box shall be located at the main entrance into the structure. The Knox Box shall be located immediately adjacent to the main door/s, located to the right side (as viewed from the outside, facing the door/s), and mounted six (6) feet above finished floor level. Any deviation from these location parameters shall be reviewed by the Fire Department prior to installation of the Knox Box.

3. The two-inch square, red reflective, self-adhesive Knox decal shall be attached to the door located closest to the installed Knox Box. The decal shall be placed next to the door locking mechanism, in an area not subject to repainting if possible.



4. The Knox Box shall be secured to the structure with a minimum of five (5) 5/16 inch diameter Grade 8 carriage bolts per the Knox Company installation instructions or Fire Department approved equivalent fasteners. The bolts shall penetrate through a substantial structural element, and the securing lock nuts shall be located within the Knox Box. Tamper switches are optional but recommended in those occupancies where the tamper switches can be integrated with a monitored sprinkler or fire alarm system.

5. Series 3200 Knox Box is designed to provide secure storage for up to ten (10) keys. Series 4400 Knox Box shall be used when storage of ten (10) or more keys is necessary. The recessed-mount style box is recommended as this style of installation is more resistant to vandalism. All series 3200 and 4400 Knox Boxes are fully tested and listed by UL as both an anti-theft device and burglar alarm system accessory unit (OFC 506.1).

Special Applications

Doors Provided with Electro-Magnetic Security Locks

1. When the main entrance to a structure is provided with an electro-magnetic security locking system and keypad or card reader, Fire Department emergency access can be accomplished by:
    a. Providing a Knox key switch wired to release the magnetic door lock. This Knox key switch shall be mounted at the keypad or card reader provided at the entrance door; or,
    b. Providing a security key card for door release. This key card shall be stored in a Knox box located at the door at which access is to be provided. Knox box mounting location shall be as designated above.

Vehicle Gates, Automatically Operated (Unattended)

1. Electrically operated gates that control vehicle access on drives utilized by Fire Department vehicles shall be provided with a Knox key switch.

2. If the gate provides access to a residential neighborhood or complex housing more than 18 units, emergency gate control shall be accomplished utilizing the Opticom system.

3. The Knox key switch shall be mounted adjacent to the key pad or card reader and face the vehicle access drive.

Vehicle Gates, Manually Operated

1. A Knox padlock is the preferred method of security. If the gate design will not accommodate more than a single padlock and access is required by other individuals or agencies, a single private padlock may be utilized and a Knox Box installed.

2. The Knox Box shall be located on the support fence post closest to the private padlock. If the gate has two panels, the Knox Box shall be installed on the right support fence post, located at a height of six (6) feet or at the top of the post for a fence less than six (6) feet in height.

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Fire Department Access to Equipment

Standard

Fire protection equipment shall be identified in an approved manner (OFC 509.1).

Specification

1. Identification. Rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. *Approved* signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible (OFC 509.1)

2. Equipment access. *Approved* access shall be provided and maintained for all fire protection equipment to permit immediate safe operation and maintenance of such equipment. Storage, trash and other materials or objects shall not be placed or kept in such a manner that would prevent such equipment from being readily accessible (OFC 509.2).

3. Marking on access doors. Access doors for automatic sprinkler system riser rooms, fire pump rooms, fire alarm control panels and other fire protection equipment rooms shall be labeled with an *approved* sign (OFC 901.4.6.2).

    a. The lettering shall be white on a red background
    b. Letters shall have a minimum height of 2 inches with a minimum stroke of 3/8 inch

Fire Protection Water Supplies

Fire Flow

Standard
An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction (OFC 507.1).

Specifications
1. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an *approved* method (OFC 507.3). See OFC Appendix B.

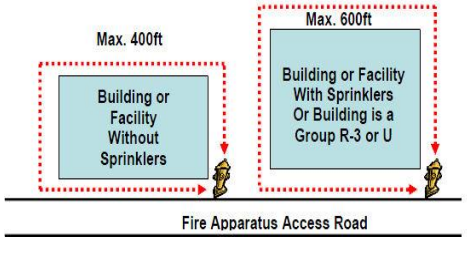
2. The City of Corvallis has an adequate and reliable water system (OFC B105).

3. The provisions of the OFC Appendix section B105 shall apply to those areas where fire hydrants and water supply systems are present and that are capable of meeting the minimum specified fire flows specified as follows:
   a. The minimum fire flow and flow duration requirements for one- and two-family *dwellings*, Group R-3 and R-4 buildings and townhouses having a fire-flow calculation area that does not exceed 3,600 square feet shall be 1,000 gallons per minute for 1 hour. Fire-flow and flow duration for *dwellings* having a fire-flow calculation area in excess of 3,600 square feet shall not be less than that specified in Table B105.1(1) and Table B105.1(2) (OFC Appendix B105.1).
   b. The minimum fire-flow and flow duration for buildings other than one- and two-family dwellings, Group R-3 and R-4 buildings and townhouses shall be as specified in Table B105.2 and B105.1(2) but shall be not less than 1,500 gallons per minute at not less than 20 pounds per square inch residual (OFC Appendix B105.2).

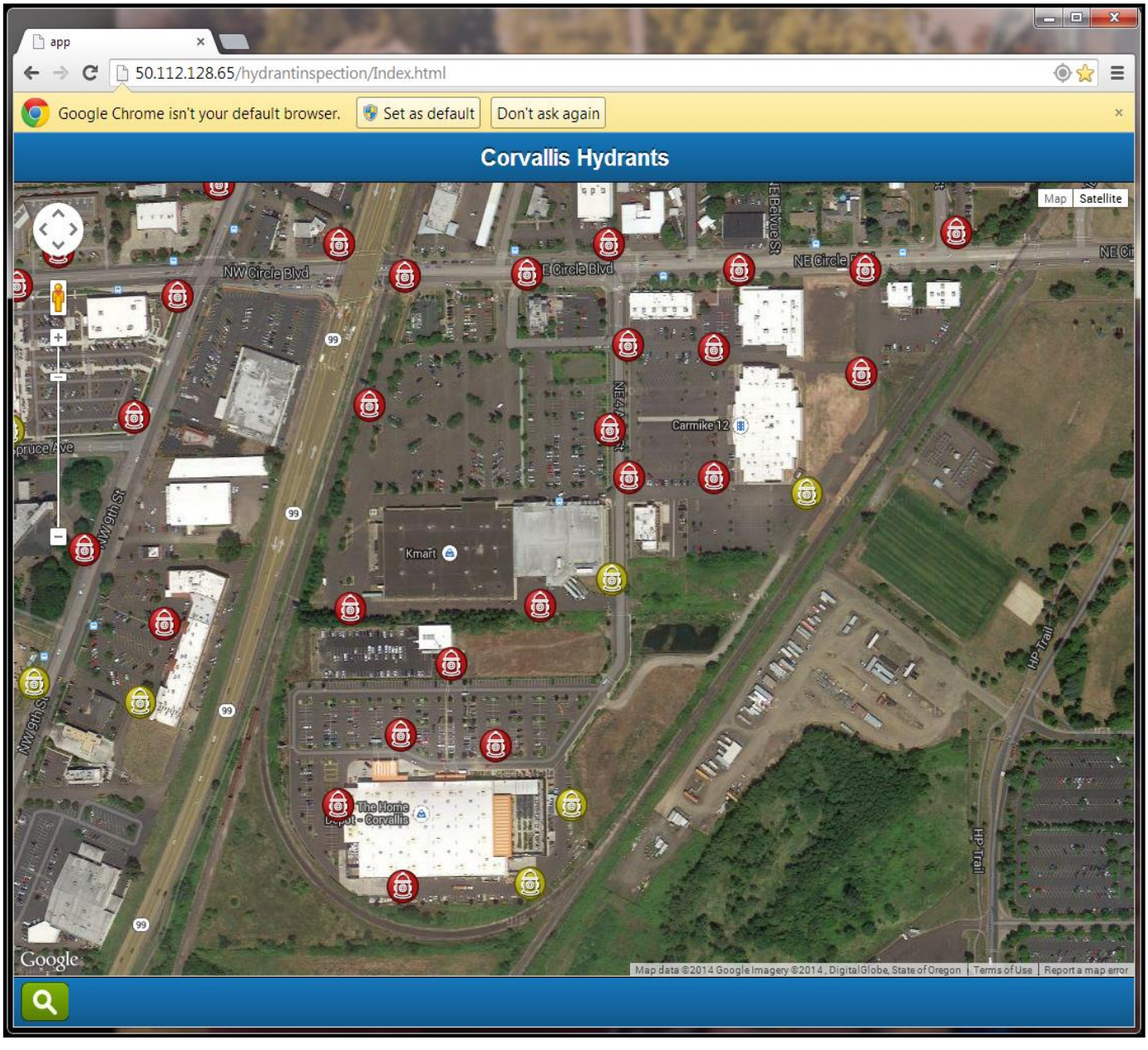
4. The Corvallis Fire Department has limited the maximum required fire-flow.
   a. No building shall be constructed, altered, enlarged, moved, or repaired in a manner that by reason of size, type of construction, number of stories, occupancy, or any combination thereof creates a need for a fire-flow in excess of 3,000 gallons per minute at 20 pounds per square inch residual pressure as specified in OFC Appendix B Table 105.2, or exceeds the available fire flow at the site of the structure (OFC Appendix B106.2)

5. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official (OFC 507.5.1).

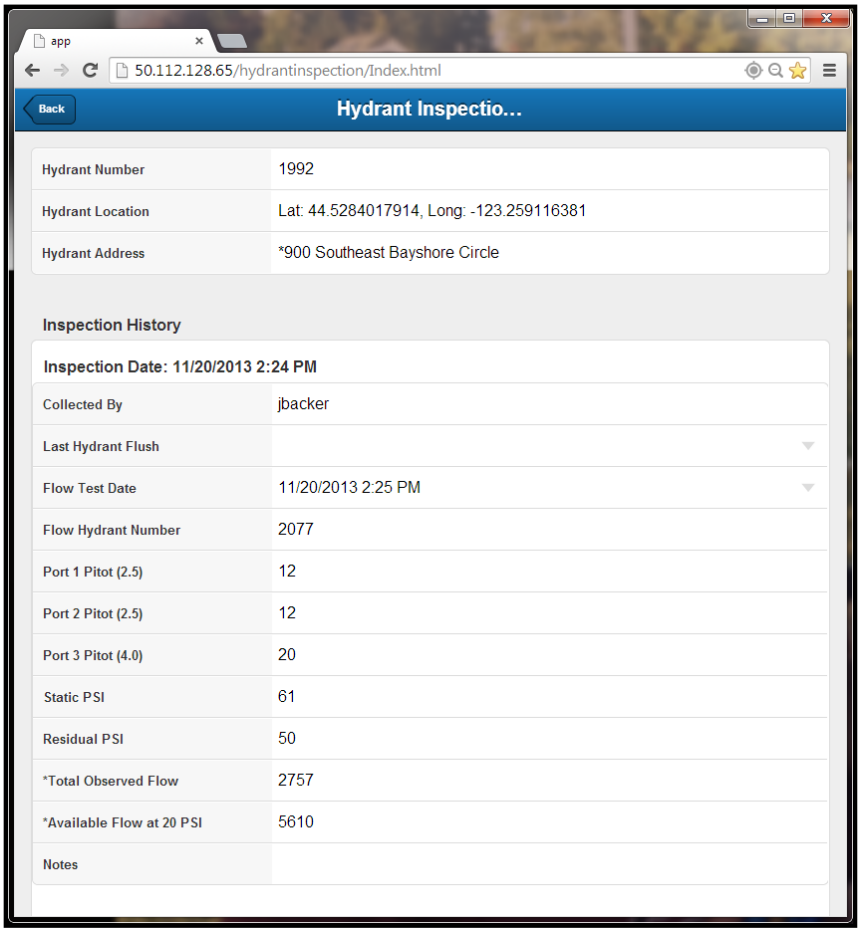
   Exceptions:
   1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet
   2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet.



6. Subsequent to fire protection system design and plan submittal for review of a hydraulically calculated fire sprinkler system, the volume and pressure of the public water supply shall be determined from water flow test data.
    a. Much of the City has been pre-tested and Fire Flow information can be found using: **Google Chrome browser (only)** at http://50.112.128.65/hydrantinspection/
        i. Hydrants that have been Flow Tested within the previous 5 years will have a Gold or Green Icon on the Hydrant Inspection Map
        ii. Select the hydrant icon to view the Fire Flow information.
        iii. Pan the mouse to scroll down and view historical information



b. For areas that have not been tested, Fire Flow tests can be requested through the Fire Prevention Division.
   i. Call the Fire Prevention Division at 541-766-6961 to request a Fire Flow test.
   ii. Provide the hydrant number and hydrant address found on the Hydrant Inspection website that you wish to have tested in your request
   iii. The turnaround time for CFD personnel to conduct a Fire Flow test and publish the test results is generally 10 working days.
   iv. This test is pre-paid through the fire sprinkler permitting process.



c. If no current Fire Flow data is available, a developer has the option to have the test conducted through a private entity under the following guidelines:
   i. Corvallis Public Works and the Fire Department shall be notified prior to performing any hydrant water flow tests.
   ii. The test shall be conducted by a fire sprinkler contractor, a fire protection engineer, or a NICET Level III sprinkler designer.
   iii. Approved independent testing shall utilize the flow test procedure identified in NFPA 13, Chapter 23.
   iv. At the conclusion of the flow test, documented results shall be submitted to representatives of Development Services, Corvallis Public Works, and the Fire Marshal's office for review and entry into the permanent record.

Fire Hydrants

Standard:
Fire hydrants shall comply with the Oregon Fire Code (OFC Section 507.5) and the City of Corvallis Engineering Division Standards Details. The dry fire hydrant barrel specified by the City of Corvallis is provided with two 2½ inch outlets and a 4½ inch outlet. In conformance with the national standard NFPA 1963, all outlets are specified with National Standard Threads.

For installation requirements refer to the City of Corvallis Public Works fire hydrant specifications and Standard Detail 303 - Fire Hydrant Setting.

Specifications:

1. The installation of blue reflective markers on fire department access roads marking the location of all new or existing fire hydrants that are prescriptive for the fire protection of the site, is required and shall be installed at the time of building construction

2. The installation of non-threaded quick connectors on fire hydrants and fire department connections shall be approved by the fire code official.

3. Unobstructed access to fire hydrants shall be maintained at all times. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants. (OFC 507.5.4)
    a. Remove security chains from 2 ½" port hydrant caps

4. A clear space of not less than three feet shall be maintained around the circumference of fire hydrants (OFC 507.5.5)

5. Where fire hydrants are subject to impact by motor vehicles, guard posts or other approved means of physical protection shall be approved. Guard posts shall comply with the following requirements (OFC 505.5.6):
    a. Constructed of steel not less than 4 inches in diameter and concrete filled.
    b. Spaced not more than 4 feet between posts on center.
    c. Set not less than 3 feet deep in a concrete footing of not less than a 15 inch diameter.
    d. Set with the top of the posts not less than 3 feet above ground.
    e. Located no closer than 3 feet to the fire hydrant or FDC.

6. **STORZ Adapter.** To eliminate the need of carrying additional adapters on responding Corvallis Fire Department equipment, and to facilitate a quick connection, a 5-inch Storz adapter with National Standard Threads shall be installed on the 4½ inch outlet.
    a. The adapter shall be constructed of high-strength aluminum alloy, have a Teflon coating on the seat and threads, and use a rubber gasket and manufacturer provided set screws to secure the cap in place.
    b. The adapter shall be provided with an aluminum alloy pressure cap.
    c. The cap shall be attached to the hydrant barrel or Storz adapter with a cable to prevent loss or theft of the cap.

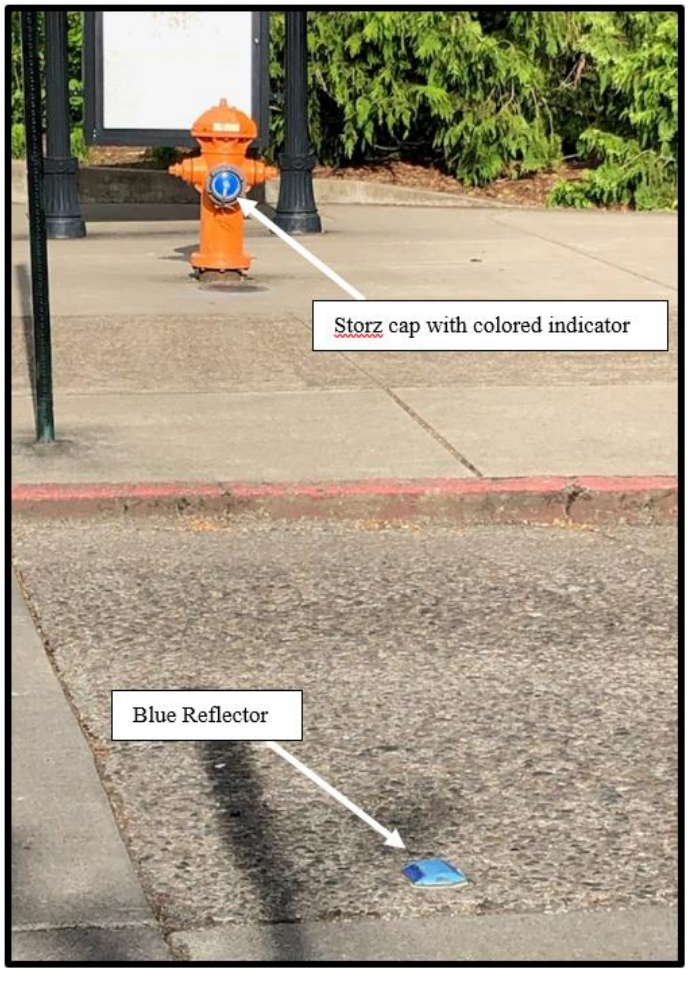
7. **Color Coding/STORZ Adapter Cap.** To provide additional visibility and to identify flow volume**,** the Storz adapter cap shall be identified by an adhesive-backed reflective circular trim.
    a. This reflective trim strip will encircle the cable anchor point located in the center of the pressure cap.
    b. The reflective trim shall be attached by the contractor at the time new hydrants are accepted by the City Engineering Division.
    c. On retrofitted hydrants, the reflective trim will be attached by the Fire Department after the inspection/flush is performed by the Fire Department.

d. The color of the adhesive trim shall indicate the available flow volume of the water supply system as identified in NFPA 291, "Fire Flow Testing and Marking of Fire Hydrants" (shown below):

Trim Flow (GPM) @ 20 psi Residual	
Blue	1,500 or greater
Green	1,000 - 1,499
Orange	500 – 999
Red	Less than 500

8. **Private Hydrants.** When on-site fire hydrants are required, City policy encourages the installation to be part of the public system. In those rare cases where the hydrants are private, they shall be identified by having the hydrant barrel/s painted red. Private hydrant systems shall be installed per NFPA 24.

9. **Private Hydrant – Maintenance.** The owners of developments provided with private water mains and hydrants are responsible for the maintenance and semi-annual testing of the hydrants in conformance with the NFPA 24, Section 14.1, and NFPA 25. The semi-annual test shall be documented on a tag and signed by the qualified individual performing the testing. This inspection tag shall be attached to one of the main shut-off valves on the double backflow preventer.



Fire Hydrant Location and Distribution

Standard:
An *approved* water supply capable of supplying the required fire flow for fire protection shall be provided to premises on which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction (OFC 507.1).

Specifications:

1. Where a portion of the building is more than 400 feet from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants shall be provided (OFC 507.5.1).

2. Where dwellings (Group R-3) or utility (Group U) structures only are located, such as in residential subdivisions, the distance, as measure by an approved route around the exterior of the facility or building, from a hydrant shall be not more than 600 feet.

3. Where buildings are equipped throughout with an approved automatic fire sprinkler system installed to either NFPA 13, NFPA 13R, or NFPA 13D, the distance as measure by an approved route around the exterior of the facility or building, from a fire hydrant shall be not more than 600 feet.

4. Fire hydrants shall be provided along required fire apparatus access roads and public streets which are adjacent to buildings in accordance with the OFC Appendix C102.1.

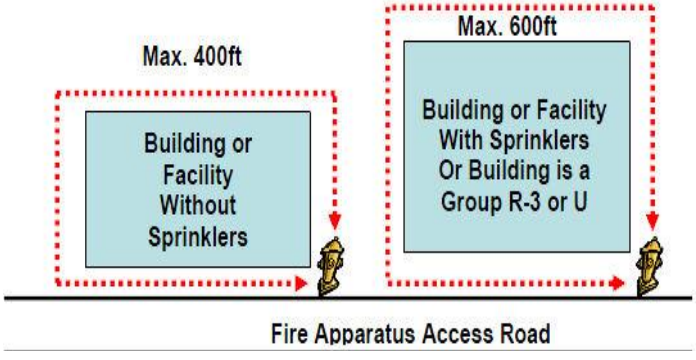
Table C102.1
Required Number and Spacing of Fire Hydrants

FIRE-FLOW REQUIREMENT	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS	MAX DISTANCE FROM ANY POINT ON STREET FRONTAGE TO A HYDRANT
1,750 or Less	1	500	250
1,751 – 2,250	2	450	225
2,251 – 2,750	3	450	225
2,751 – 3,250	3	400	225

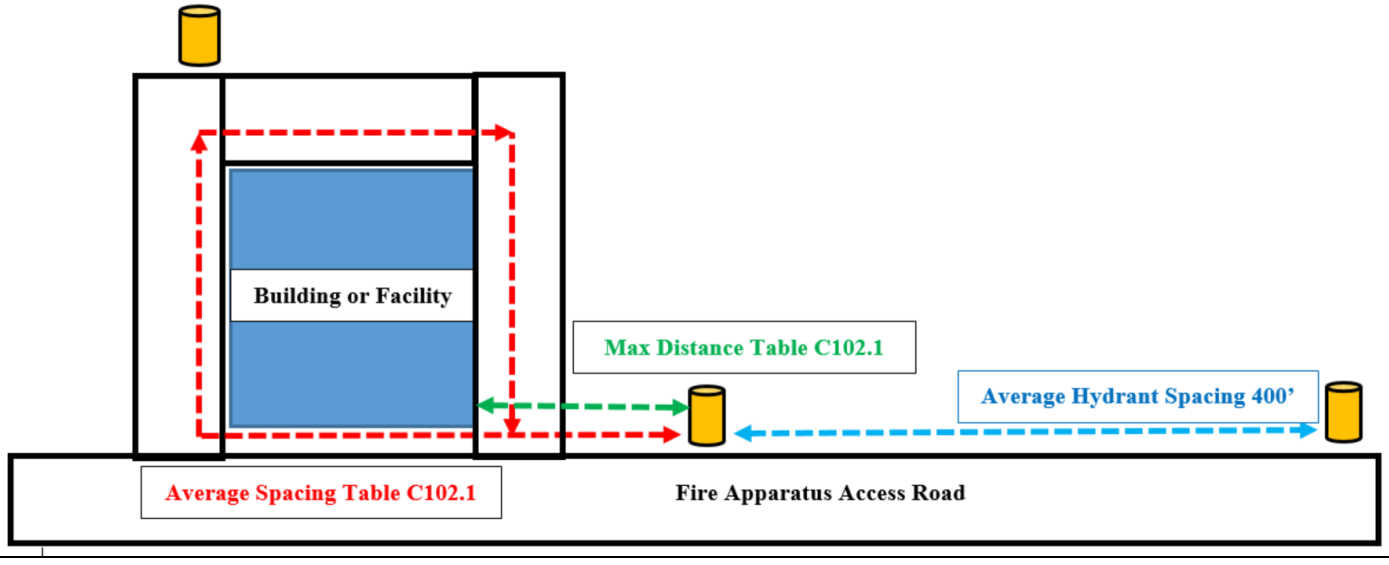
5. The number of fire hydrants available, including consideration of existing fire hydrants, shall be in accordance with OFC Appendix sections C103 and C104.

6. The Fire Marshal shall approve the location and distribution of fire hydrants.

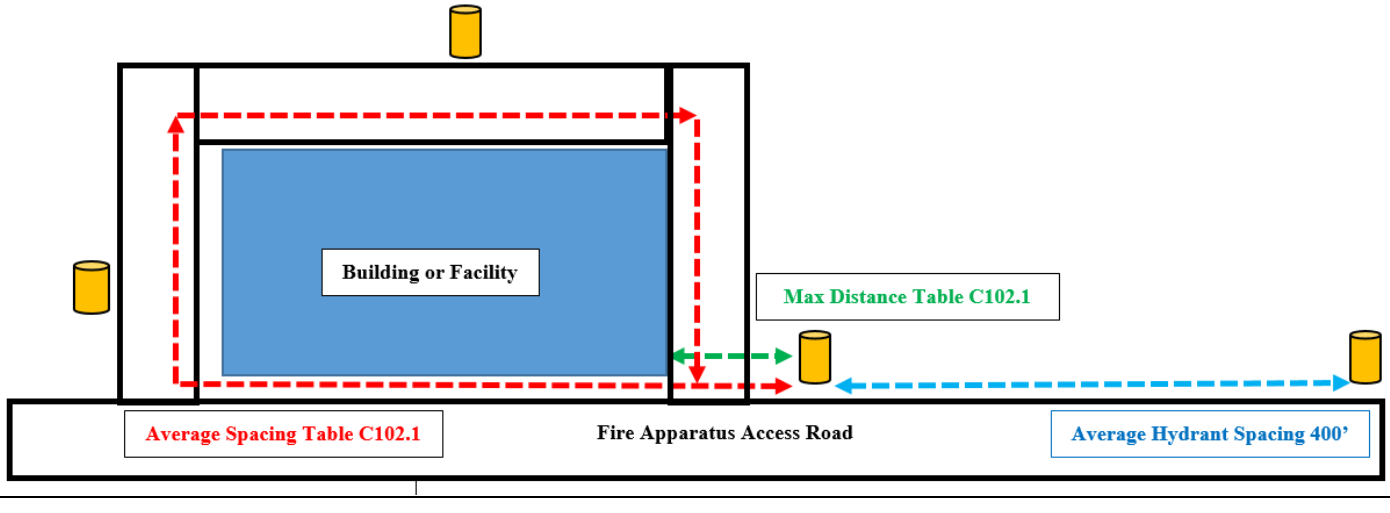
One Hydrant



2 Hydrants



3 Hydrants



Water Supply during Construction or Demolition Operations

Standard:
An approved water supply for fire protection shall be made available as soon as combustible material arrives on construction sites (OFC 3312.1).

Specifications:

1. Fire protection water supplies shall be operational prior to the beginning of combustible construction, and maintained during the demolition of buildings.

2. The Fire Marshal may allow an applicant to begin construction without on-site fire protection hydrants in place, provided the following conditions exist:
   a. The applicant submits a written request for permission to proceed with non-combustible construction, using the through use of existing fire hydrants.
   b. Any existing hydrant proposed for use shall be located within 400 feet of structure as measured along the road of fire department access.
   c. This request shall also state the applicant's understanding that this alternate means of protection is for temporary use only and that all required fire hydrants will be installed, inspected, and approved prior to occupancy of any structures.
   d. In buildings where an automatic sprinkler system is required by this code or the International Building Code, it shall be unlawful to occupy any portion of a building or structure until the automatic sprinkler system installation has been tested and approved (OFC 3314.1).
   e. In buildings required to have standpipes, not less than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at accessible locations adjacent to usable stairs. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring (OFC 3313.1).

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Fire Suppression Systems

Fire Suppression Systems

Standard
Automatic sprinklers and appurtenances shall meet the approval of the Fire Department as to installation and location, and shall be designed in accordance with NFPA 13, NFPA 13R or NFPA 13D, and NFPA 25, and subject to acceptance tests as required by the Fire Marshal.

Specifications
This guideline **does not** cover all the requirements or details, nor is it an attempt to restate all of the requirements or details for appurtenances installed on or for sprinkler systems addressed by NFPA 13 **but addresses only those items listed below**, the specific details of which may not be adequately identified by existing code language.

Fire Department Connection (FDC)

1. The location of the FDC shall be identified by the applicant and approved by the City prior to issuance of the site utilities permit.

2. Design of Installation
    a. Fire department connections shall be located on the street side of buildings or facing *approved* fire apparatus access roads, fully visible and recognizable from the street, fire apparatus access road or nearest point of fire department vehicle access of as otherwise approved by the *fire code official*. (OFC 912.2.1)

3. The FDC shall be located as specified in a) through d) below (OFC 912.2):
    b. Forty (40) feet from the protected structure;
    c. Two (2) feet behind the curb face or rear edge of the sidewalk; and
    d. Not less than 18 inches nor more than 4 feet above the level of the adjacent grade or access level; and,
    e. Within 150 feet of a hydrant but not closer than ten (10) feet.

EXCEPTION: Where it is technically infeasible to meet the above dimensions, an alternate FDC location shall be proposed for Fire Department review that meets the intent of the above-stated parameters and shall be approved by the Fire Marshal prior to installation.

4. Systems designed for a total combined water demand of 2,100 gpm and over shall be equipped with an FDC having a minimum of four (4) 2 ½ inch N.S. clappered inlets Siamesed into a minimum six (6) inch pipe.

5. FDC Signage. A metal sign shall be mounted on all fire department connections serving automatic sprinklers, standpipes or fire pump connections. Such signs shall read: AUTOMATIC SPRINKLERS or STANDPIPES or TEST CONNECTION or a combination thereof as applicable (OFC 912.5).
    f. Where the fire department connection does not serve the entire building, a sign shall be provided indicating the portions of the building served.
        i. Example: An FDC for a basement shall indicate “basement only” (OFC 912.5).
    g. If the FDC serves more than one address, those address numbers shall be listed on the FDC (OFC 912.5).
    h. The signs required by Items "a” and "b” above shall be permanently attached to the FDC riser, constructed of metal, with reflective red, one (1) inch high lettering, 1/4 inch stroke, on a reflective white background. These signs shall be constructed on standard aluminum .080 stock (OFC 912.5).
    i. Signs shall be securely mounted to the FDC riser and located in a position so that it does not interfere with making the necessary hose connections (OFC 912.5).

6. FDC Access. Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other fixed or moveable object (OFC 912.4).
    j. Clear space around connections. A working space of not less than 36 inches in width, 36 inches in depth and 78 inches in height shall be provided and maintained in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections (OFC 912.4.2).
    k. Physical protection. Where fire department connections are subject to impact by a motor vehicle, vehicle impact protection shall be provided in accordance with OFC Section 312. (OFC 912.4.3)

7. Systems Providing Protection to Two or More Buildings.
    l. The building served and visual alarm notification on those buildings, shall be within direct site of the FDC serving that building
    m. Signage shall be as required in 11.1.2.5.1(4)

Local Water Flow Alarm Bell (Both electrical and water motor operated)

1. Exterior Alarm Bell Location:
    a. The water flow alarm bell for a single building shall be located on the face of the building closest to the FDC, and directly in line with, and behind the FDC.

2. If a single FDC serves more than one building, a water flow alarm bell shall be provided for each protected structure.
    a. These bells shall operate independently of each other and only when there is a water flow within the building to which each is attached.
    b. To avoid audible confusion, these units shall be bell/strobe assemblies and listed for exterior installation. The bell/strobe assemblies on each building served shall be visible from the FDC location.
    c. The location of the bell/strobe assemblies shall be specified by the applicant on the fire sprinkler plans and shall be approved by the Fire Marshal on these plans prior to issuance of the permit authorizing sprinkler system installation.

3. The alarm bell shall be installed at a height of at least eight (8) feet above prevailing grade, but no more than twelve (12) feet. Other installation locations may be approved by the Fire Marshal.

4. Alarm notification appliances shall be provided and shall be *listed* for their purpose (OFC 907.5.2).

5. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm (OFC 907.5.2.1).

6. When a contiguous building (or buildings in the case where area separation walls exist) has multiple Fire Department Connections, the individual FDCs and water flow alarm bells shall be labeled in a manner to correlate each water flow alarm bell to the appropriate FDC, either by address (i.e., suite 1, 2, etc., or Suite A, B, etc.); sprinkler system number or letter (i.e., 1, 2, or A, B, etc.); or by direction (i.e., east system, west system, etc.).

Signage/Marking of Multiple Fire Protection System Division Lines

1. When a contiguous building (or buildings in the case where area separation walls exist) is protected by more than one sprinkler system, those sprinkler system divisional lines shall be permanently identified on the exterior of the structure.
    a. The sign shall be centered on the sprinkler system divisional line and mounted on the exterior of the building at the top of the wall or eave line.
    b. If the division line is at an inside corner created by exterior walls, the sign must be folded lengthwise at a 90 degree angle to fit the corner.

Underground Fire Sprinkler Permits (Ref: CFC 11.1.2.1.3)

At times a builder may find it necessary to defer submittal of fire sprinkler plans. In order to request underground piping inspections prior to trench backfill and pouring concrete for slabs and foundations, the builder will need to obtain a fire sprinkler permit. **This Underground Fire Sprinkler Permit applies to system supply piping originating 5 feet outside of the building, and extending to the riser base inside of the building.**

Option 1:

1. For NFPA 13, 13R or 13D systems provide an approval from the system design professional identifying the minimum supply size required for the underground piping supplying the pending overhead fire protection system.

2. All systems will be required to be successfully flushed and hydrostatically tested upon complete installation of entire underground system per CFC 11.1.2.5.6.

3. Use of joints and fittings shall not exceed 3, continuous connections are preferred.

4. Mega lug connections are required as well as thrust blocks.

Option 2: Development Services staff and the Corvallis Fire Prevention Division have created a process for rapid partial-system permit approval using standard criteria for fire sprinkler supply pipe sizing.

1. For residential NFPA 13D multipurpose systems (combined fire sprinkler and domestic plumbing):
    a. Provide a minimum water service two times larger than the minimum building plumbing fixture supply.
    b. For example, 1 inch required plumbing fixture building supply, install 1 ½ water service.

2. For residential NFPA 13D stand alone systems:
    a. For homes 2,000 sqft. or less, provide a minimum 1 ½ inch supply piping
    b. For homes larger than 2,000 sqft., provide a minimum 2 inch supply

3. For NFPA 13R systems:
    a. In buildings 4,000 sqft. or less, provide 2 inch supply piping
    b. In buildings greater than 4,000 sqft., provide a minimum 4 inch supply.
    c. All FDC connections for 13R systems shall be a minimum of 1 ½ inch.

4. For all NFPA 13 systems:
    a. Provide a minimum 6 inch supply
    b. All FDC connections for 13 systems shall be a minimum of 4 inch.

5. All systems will be required to be successfully flushed and hydrostatically tested upon complete installation of entire underground system per CFC 11.1.2.5.6.

6. Use of joints and fittings shall not exceed 3, continuous connections are preferred.

7. Mega lug connections are required as well as thrust blocks.

Acceptance Testing Requirements for Underground Piping

1. Prior to conducting hydrostatic tests for associated sprinkler piping, the private fire service mains and lead-in connections to system risers shall be thoroughly flushed before connection is made to sprinkler system piping.

2. The flushing procedure shall be conducted in accordance with NFPA 13, 10.10.2.1 & A10.10.2.1.
    a. Prior to conducting the underground piping flush procedure, an approved disposal area shall be determined by a representative of Development Services for the water issuing from the test outlets.
    b. Underground mains and lead-in connections to system risers should be flushed through hydrants at dead ends of the system or through accessible aboveground flushing outlets allowing the water to run until clear.
    c. If water is supplied from more than one source or from a looped system, divisional valves should be closed to produce a high-velocity flow through each single line. The flow should produce a velocity of at least 10 ft/sec, which is necessary for cleaning the pipe and for lifting foreign material to an aboveground flushing outlet (NFPA 13, Table 10.10.2.1.3).
    d. Hydrostatic tests should be made before the joints are covered, so that any leaks can be detected. Thrust blocks should be sufficiently hardened before hydrostatic testing is begun.
    e. If the joints are covered with backfill prior to testing, the contractor remains responsible for locating and correcting any leakage in excess of that permitted.

3. Upon completion of the underground piping work, inspection, flushing and testing, the *Contractor's Material and Test Certificate for Underground Piping* NFPA 13, Fig 10.10.1 shall be completed and submitted to Development Services, for review and permanent record.

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NFPA 13D Residential Fire Sprinkler System Acceptance Testing

OFC section 901.5. Fire detection and alarm systems, emergency alarm systems, gas detection systems, fire extinguishing systems, fire hydrant systems, fire standpipe systems, fire pump systems, private fire service mains, and all other fire protection systems and appurtenances thereto shall be subject to acceptance tests as contained in the installation standards and as approved by the Fire Marshal. The Fire Marshal shall be notified before any required acceptance testing.

1. Alternative materials and methods, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved.
    a. The fire code official is authorized to approve an alternative material, design or method of construction shall be approved where the fire code official finds that the proposed design is satisfactory and *complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety* (OFC 104.9)

2. Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the fire code official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction.
    a. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the fire code official shall approve the testing procedures (OFC 104.9.2).
    b. Tests shall be performed by an approved agency (OFC 104.9.2).
    c. Reports of such tests shall be retained by the fire code official for the period required for retention of public records (OFC 104.9.2).

3. All structures with an NFPA 13D automatic fire sprinkler system installed shall be hydraulically designed to operate 2 sprinkler heads at the most remote location.
    a. The fire sprinkler system shall conform to the System Acceptance criteria outlined in NFPA 13D, Chapter 11.
    <u>It is recommended that the 13D system be tested in the following manner</u>
    b. The Fire Sprinkler Flow should demonstrated using a 2 sprinkler head “bucket test” at the most remote location. The two sprinkler heads tested must demonstrate the designed flow rate and maintain residual pressure for one minute.

Standard Single Family Residential NFPA 13D Conditions

1. Fire Sprinkler System installation in one and two family dwellings shall be according to **2016 NFPA 13D** and the **2019 Oregon Fire Code** (OFC 903.3.1.3)

2. The layout, calculation, and installation of sprinkler systems installed in accordance with NFPA 13D shall only be performed by people knowledgeable and trained in such systems (NFPA 4.6)

3. **48hrs NOTICE** for Fire Department inspection request (NFPA 13D 11.1.2; OFC 901.5)

4. Approved NFPA 13D Residential Fire Sprinkler system **PLANS MUST BE ON SITE** for the inspection (NFPA 13D 4.5); OFC 104.2, 105.1-105.5, 901.2)

5. To avoid construction delays and additional contractor expense **PRE-TEST** all system components prior to requesting an inspection (NFPA 13D 11.1.1)

6. System Pressure Test will be at normal system operating pressure with no leaks for 2 hours (NFPA 13D 11.2.1.1, 11.2.1)

7. Protection from Freezing.
    a. Ensure proper insulation of piping to maintain temperature of system components >40$^{o}_{F}$ (NFPA 13D 9.1.1, 12.3.4); or,
    b. Provide an alternative method of protection from freezing (NFPA 13D 9.1.2, 9.2).

8. If installed, audible/visual alarms shall sound upon sprinkler system activation during the Flow Function Test (NFPA 11.2.3.1)

9. A warning sign with a minimum ¼ inch letters shall be affixed adjacent to the main shutoff valve in accordance with NFPA 13D (NFPA13D 6.3.4).
    a. For MULTIPLURPOSE SYSTEMS, this signage shall be located in the water meter/valve box, or at the main valve from the tank supply.

10. The installer shall provide to the owner/occupant instructions on inspecting, testing, and maintaining the system (NFPA 13D 12.1)
    a. The owner instructions shall include system information identified in NFPA 13D Appendix A (A.12.1, A.12.2, A.12.3.3.2, and A.12.3.4).

    ***A **FLOW FUNCTION TEST** (Bucket Test) is recommended to validate that the system is installed and performs per design criteria (NFPA 13D 3.2.1, A.3.2.1, 11.1.1; OFC 104.1, 104.9.2, 901.5).
    b. It is STRONGLY SUGGESTED that the Flow Function Test be conducted PRIOR TO COVERING the system piping.

Bucket Test Preparation

1. Locate the hydraulically most remote two sprinkler heads (as noted on plans)
2. Verify that the sprinkler control valve is closed
3. Drain the system piping
4. Remove the two most remote heads (as identified on the plan) from the system
5. Install a pipe with a ½- inch, ¼ turn ball valve, in place of each of the two most remote heads
6. Install "test heads" in the end of the pipes.
   - Identical to system heads with the thermal linkage removed
7. Replace the next upstream head with a pressure gauge
8. Open control valve and bleed air from the system through one of the ¼ turn ball valves
9. *Other test methods, such as a Flow Test Gauge, may be approved in advance by the Fire Marshal*

Test Procedure

1. Record the static pressure
2. Open both ¼ turn ball valves simultaneously and begin a timed, 30 second test
3. Record residual pressure while flowing
4. Verify audible flow alarm if installed *(not required)*
5. Measure the amount of water flowed into a calibrated container
6. Verify that the flow rate meets, or exceeds, design requirements per system plans
7. Place system back in service

Test Data

Min. Static Psi Req. (per Plans)	**Min. Flow Req.** (GPM per Plans)	**Static PSI** (witnessed)	**Residual PSI** (witnessed)	**Two Head Total Flow** (witnessed)

NOTE: *All test equipment; valves, test heads, containers, etc. shall be furnished by the installing contractor. If an accurate determination of container capacity cannot be obtained by container markings, the following formula may be used for cylindrical containers with vertical sides:* $(\pi r^2 H)/231$ *= volume, where* $\pi = 3.14$*, r = radius in inches, H = depth of water in inches.*

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Fire Alarm Systems

Fire Alarm Systems

Standard
The fire code official shall have the authority to require construction documents and calculations for all fire protection systems and to require permits be issued for the installation, rehabilitation or modification of any fire protection system (OFC 901.2, 907.1.1, 907.1.2).

1. Construction documents for fire protection systems shall be submitted for review and approval prior to system installation (OFC 901.2).

2. Before requesting final approval of the installation, the installing contractor shall furnish a written statement to the *fire code official* that the subject *fire protection system* has been installed in accordance with *approved* plans and has been tested in accordance with the manufacturer's specifications and the appropriate installation standard (OFC 901.2.1).

3. Any deviations from the design standards shall be noted and copies of the approvals for such deviations shall be attached to the written statement (OFC 901.2.1).

Specifications
All fire alarm systems and components shall meet applicable requirements listed in the edition of the following codes in effect at time of installation or alteration: The Oregon Structural Specialties Code, the Oregon Electrical Code, the Oregon Fire Code Chapter 9, and NFPA 72.

1. *Fire protection systems* shall be maintained in accordance with the original installation standards for that system (OFC 901.4).

2. Required systems shall be extended, altered or augmented as necessary to maintain and continue protection whenever the building is altered, remodeled or added to. *Alterations* to *fire protection systems* shall be done in accordance with applicable standards (OFC 901.4).

This guideline does not cover all the requirements or details, nor is it an attempt to restate all of the requirements or details for appurtenances installed on or for fire alarm systems addressed by NFPA 72 but addresses only those items listed below, the specific details of which may not be adequately identified by existing code language. The intent is to establish guidelines which detail specific installation and testing requirements for appurtenances installed on or for automatic fire alarm (NFPA 72) systems.

Fire Alarm Permit Procedures

Plan Review and Permits
Applicant shall submit plans to Development Services for review and approval, and apply for permits prior to installation or alteration of a fire alarm system (OFC 907.1.2).

1. Plans and specifications for fire alarm systems shall include, but not be limited to:
    a. A floor plan indicating the use of each area or room
    b. Location of all alarm-initiating and alarm-signaling devices
    c. Alarm control- and trouble-signaling equipment
    d. Annunciation
    e. Power connection
    f. Battery calculations
    g. Conductor type and sizes
    h. Voltage drop calculations
    i. Manufacturer, model numbers and listing information for all equipment, devices, and materials.
2. Systems and components shall be *listed* and *approved* for the purpose for which they are installed (OFC 907.1.3).
3. All code-required system plans shall be stamped by a State of Oregon licensed design professional, and shall be designed and installed in accordance with applicable codes as noted above.
4. All non-code-required system plans shall be prepared by a fire alarm system design professional, in accordance with applicable codes as noted above.
5. Fire Alarm permit fees shall be paid prior to issuance of permit.

Procedures for Code-Required Fire Alarm Systems:

1. Fire protection systems required by the OFC, ORSC, or the OSSC shall be installed, repaired, operated, tested and maintained in accordance with this code (OFC 901.4.1).
2. The plan review process is coordinated by Development Services. Applicant submits plans and requests inspections through the Development Assistance Center (DAC).
3. In addition to the building and electrical permits required by Development Services, the applicant shall apply for a Fire Alarm permit from the Corvallis Fire Department, which is obtained in Development Services
4. The Fire Prevention Office performs a plan review in conjunction with Development Services and submits all comments to the DAC Plans Examiner.
5. Development Services coordinates field inspections and final acceptance testing with the applicant and the Fire Prevention Office.
6. Records of the accepted plan, inspections, and acceptance testing will be maintained at Development Services.

Procedures for Non-Code-Required Fire Alarm Systems:

1. Any *fire protection system* or portion thereof not required by OFC, ORSC, or the OSSC shall be allowed to be furnished for partial or complete protection provided such installed system meets the applicable requirements of the OFC (OFC 901.4.2).
2. A plan review is performed by the Corvallis Fire Prevention Office. The applicant shall submit plans and request inspections through Development Services as with any other permitting process.
3. In addition to the Fire Alarm permit obtained through Development Services, the applicant shall obtain a low-voltage electrical permit from Development Services.
4. Development Services will conduct the low voltage inspections.
5. The Fire Prevention Office shall perform a plan review, final inspection, and observes the system acceptance test.
6. Records of the accepted plan, inspections, and acceptance testing will be maintained at the Fire Prevention Office.

System Design Requirements

System Design Requirements:

1. Specific design and installation requirements are contained in NFPA 72.
2. A single fire alarm control unit receiving all fire alarm input for that structure shall be located in a supervised and/or secure area, where it will not be tampered with but can be heard if a trouble signal sounds.
    a. If installed in a secure, normally unstaffed area (i.e., the utility room), the door providing access to that room shall be identified with a sign.
    b. The sign shall have 1-inch (minimum) red lettering and shall read, "Fire Alarm Control Unit."

3. **Annunciator Panel.** A remote annunciator panel shall be located near the most appropriate entrance as designated by the Fire Marshal based on the access which will be utilized by fire emergency vehicles.
    a. The location of the annunciator panel will be identified on the approved plans prior to issuance of the fire alarm permit.
        i. If possible, the annunciator panel shall be mounted on an interior wall where it is visible from the exterior (through a glass door or window).
    b. The Knox Box and Fire Department Connection (FDC) shall be co-located in proximity to the annunciator entry. Alternative locations may be approved by the Fire Marshal prior to installation.
    c. In those occupancies where a voice annunciation system is required, the panel containing the microphone provided for fire department use shall be located adjacent to the remote annunciator panel.
    d. Audible alarm system notification device shall NOT be located in close proximity to the annunciator panel
    e. The Fire Marshal or designee shall have the authority to waive the requirement for a remote annunciator when the main Fire Alarm Control Panel is readily visible and accessible at an appropriate building entrance or lobby.

4. **Zoning.** When two or more alarm zones are required, fire protective signaling systems shall be divided into zones to assist in determining the fire location and type of device (OFC 907.6.4).
    a. The annunciation of all zones and device identification shall be on electrically supervised initiating circuits to the main fire alarm control unit and remote annunciator panels.
    b. Alarm, supervisory, and trouble signals shall be annunciated in the main control unit by means of an audible signal and a visual display.
    c. Such annunciation shall indicate the building, floor, zone, type of device activated, or other designated area from which the alarm or trouble signal originated.

    For the purposes of annunciation, zoning shall be in accordance with the following:
    a. When the fire protective signaling system serves more than one building, each building shall be considered a separate zone.
    b. Each floor of a building shall be considered a separate zone.
    c. Each section of floor of a building that is separated by area separation walls or by horizontal exits shall be considered a separate zone.
    d. Identification of the type of alarm, initiating devices such as manual pull, smoke detector, heat detector, sprinkler water flow, sprinkler supervisory switches, hood suppression system, etc., shall be separately indicated on electrically supervised initiating circuits to the main fire alarm control unit and remote annunciator panels.

Example 1: 400 NW Harrison Blvd, Floor 1, room 101, smoke detection.
Example 2: 400 NW Harrison Blvd, water flow

5. On **non-addressable fire alarm systems** or addressable fire alarm systems connected to non-addressable initiating devices, a permanent zone identification map and labeling shall be provided at the fire alarm control panel and annunciator panel/s.
    a. The proposed map and labeling shall be submitted to the Plans Examiner for review and approval prior to installation.
    b. An acceptable method is to have the map mounted on the wall by the annunciator panel and fire alarm control unit, with a Plexiglas cover protecting the map.
    c. A properly installed and programmed, fully addressable fire alarm system, provided with initiating devices that are all individually addressable does not need to be provided with a zone map.
    d. Written operating, *testing and maintenance* instructions and *as-built drawings* shall be provided and stored at the fire alarm control unit.

6. **Alarm System Monitoring.** When fire alarm systems are required to be monitored, it shall be by an approved central, proprietary, or remote station service except where local monitoring is allowed by the Oregon Structural Specialty Code and/or the Oregon Fire Code.
    a. The method of providing systems monitoring may be any of the above as permitted by the Code and shall be identified on the plans submitted for permit application (OFC 907.6.6).

7. **Audible Alarm Signal.**
    a. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm (OFC 907.5.2.1).
    b. The use of the distinctive three-pulse temporal pattern fire alarm evacuation signal is required. This pattern consists of an “on” phase lasting 0.5 seconds, followed by an “off” phase lasting 0.5 seconds for three successive “on” periods, which is then followed by an “off” phase lasting 1.5 seconds. The signal will be repeated for not less than 180 seconds.
    c. Alarm notification appliances shall be provided and shall be listed for their purpose (OFC 907.5.2).

Fire Alarm Final Inspection & Acceptance Testing

1. Upon completion of the installation, the fire alarm system and all fire alarm components shall be tested in accordance with NFPA 72 (OFC 907.7).

2. **BEFORE REQUESTING FINAL APPROVAL** of the installation, the installing contractor shall furnish a written statement to the *fire code official* that the subject *fire protection system* has been installed in accordance with *approved* plans and has been **PRE-TESTED** in accordance with the manufacturer's specifications and the appropriate installation standard (OFC 901.2.1).
    a. Written certification shall be submitted to either Development Services *(for code-required systems)* stating that the system has been installed in accordance with the approved plans, specifications and appropriate standards.
    b. Written certification shall be submitted to the Fire Department *(for non-code-required systems)* stating that the system has been installed in accordance with the approved plans, specifications and appropriate standards.

3. Upon completion of installations or any alterations, tests of the system shall be conducted in the presence of, and as directed by the Building Inspector and the Fire Prevention Officer, using the edition of NFPA 72 under which the permit was submitted, as the guide for the testing process.
    a. **Battery Test.** A battery stress test will be included in the final acceptance test.
        i. In order to facilitate this test, the system shall be put in battery back-up mode for the 24 hours preceding the test, and **signaling devices shall be activated for a minimum of 5 minutes** during the acceptance test.
    b. ALL functions of the Fire Protection Systems shall be tested, including:
        i. Operation of the systems in ALL alarm and trouble modes for which it is designed
        ii. If applicable, ALL alarms will be transmitted through the monitoring service and to fire dispatch, to ensure proper zoning and device identification.
        iii. Initiating devices will also be tested such as pull stations and smoke detectors.

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Fire Alarm Final Inspection & Acceptance Testing Checklist

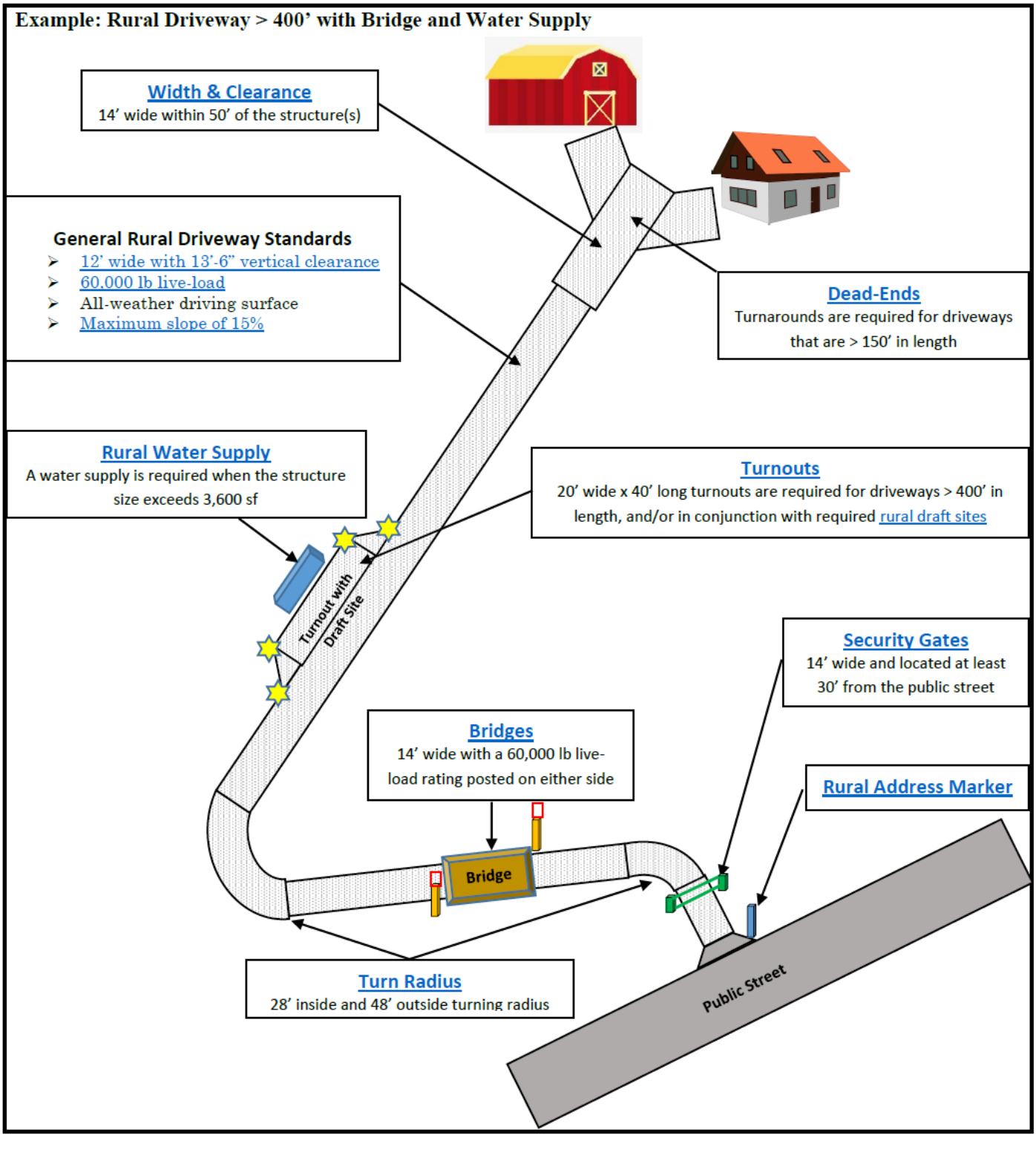
As a minimum, the following items shall be verified through a plan review, field inspection, and acceptance test. The installer shall phone Corvallis Development Services (541-766-6745) to schedule the inspection and acceptance test 48 hours in advance of the desired appointment. Development Services will notify the Corvallis Fire Department of the inspection appointment. The approved alarm plans and building permit, with any attached conditions, shall be available at the job site for reference. Before requesting final approval of the installation, the installation contractor shall furnish the Record of Completion, verifying that the system has been installed as per the approved plans and tested in accordance with the manufacture's specifications and NFPA 72 standards. The following items will be verified; testing to be performed by installer and observed by the building and/or fire inspector(s).

	Pass	NA	General Criteria
1	☐	☐	Received Record of Completion form from the installer.
2	☐	☐	Approved alarm plans on-site.
3	☐	☐	Fire alarm panel and components match approved plans.
4	☐	☐	FACP/Annunciator panel location same as plans, and a permanently installed zone/ legend map is provided at the remote annunciator. Zone map not required on fully addressable system.
5	☐	☐	Zones are properly identified on panel(s). Addressable verbiage or zone labeling.
6	☐	☐	System has dedicated 120 AC branch circuit with lockout and labeling.
7	☐	☐	Type and gauge of wire of cable(s) match plans.
8	☐	☐	Device location and wiring are the same as the approved plans and as required by Code.
9	☐	☐	Pull stations are proper height and location, 42" to 54", 200' maximum travel distance.
10	☐	☐	A completed Contractor decibel pretest list is provided for spot checking.
	Pass	**NA**	**Operational**
11	☐	☐	Fire alarm warning devices are audible throughout the occupancy at least a minimum of 15 dBAs above ambient noise level or 5 dBAs above maximum noise level, sound level of not less than 75 dBA at 10 ft (3 m). For bedrooms with door closed, 70 dBA at the pillow. NFPA 72, Chapter 4-3.
12	☐	☐	Fire alarm audibles are a three-pulse temporal pattern.
13	☐	☐	Fire alarm accessibility devices (strobes) are proper candella, height, and location, 80" to 96" above finished floor.
14	☐	☐	Fire alarm warning devices activate by the operation of the sprinkler flow.
15	☐	☐	HVAC duct detectors are supervised by the fire alarm system and fans shutdown. Initiate a supervisory signal; not fire alarm signal. Where in-duct smoke detector's alarm indicator is not visible or more than 10' high, remote indicators shall be installed in an accessible location and labeled.
16	☐	☐	24-hour listed fire monitoring service received signals. Verify that the correct street address and signal are received: alarm, trouble, and supervisory alarms are to be distinctive signals.
17	☐	☐	Monitoring company contacts 911 within 90 seconds of receiving the alarm.
18	☐	☐	Two monitoring circuits are provided and both are tested for sending signals to monitoring company and verify line seize function.
19	☐	☐	Verify proper operation of door-releasing hardware, smoke barriers, and/or ventilation shutdown.

	Pass	NA	Operational (cont.)
20	☐	☐	Sprinkler valve tamper switches cause trouble light and buzzer indication at the annunciator panel and tamper signal at monitoring service.
21	☐	☐	Microphone/handset for voice evacuation system (if provided) is located at the annunciator panel for fire department use and is operative.
22	☐	☐	For air sampling and flame detectors, test device per the manufacturer's instructions.
23	☐	☐	Resettable heat and smoke detectors, and pull stations, are tested (sample of total).
24	☐	☐	Trouble condition is tested on each circuit. Alarm contractor to momentarily disconnect wire/remove initiation device.
25	☐	☐	Remote annunciator receives the correct point or zone identification information.
26	☐	☐	Battery stress test: system switched to battery operation 24 or 60 hours before the test. Then, activate audible circuit per code, 5 min. for voice communication systems.
27	☐	☐	Verify battery charger operation.
28	☐	☐	Test ground fault monitoring circuit, if provided
29	☐	☐	Under primary and secondary (standby) power, these tests are performed:
	☐	☐	a. Power light on and in normal condition; trouble signal when on secondary power.
	☐	☐	b. Supervisory signals: fire pumps, water level/temp, pressure switches, control valves.
	☐	☐	c. Silence switches.
	☐	☐	d. A second initiating zone overrides silence switch.
	☐	☐	e. Trouble signals and panel light operate for each circuit tested; disconnect wires from devices and primary power supply.
	☐	☐	f. Verify secondary power in alarm mode.
	☐	☐	g. Trouble and alarm reset switches operate
	☐	☐	h. Emergency voice alarms; message clear and distinct
	☐	☐	i. Initiating devices tested; audibles and visuals operate - temporal tone and strobes synchronized.
	☐	☐	j. Panel lamp test switch operates, if provided.
	☐	☐	k. Zone/address signals correct.
	☐	☐	l. Elevator(s) recall to designated floor and alternate floor.
	☐	☐	m. Elevator shaft enclosure system operates
30	☐	☐	Other systems activate fire alarm: kitchen hood suppression system, clean agent.
31	☐	☐	Water flow alarm bell is mounted in direct line of sight behind the fire department connection.
	☐	☐	a. Water flow alarm bell operates only when there is a sprinkler flow.
32	☐	☐	As-builts are required when system installation is not the same as the submitted approved plans.
33	☐	☐	The fire alarm control unit (FACU) shall be placarded with the names and contact phone numbers of both the monitoring company and alarm maintenance service provider.
34	☐	☐	The door to the room containing the FACU shall be signed "Fire Alarm Control Unit" in 1" high red lettering.
35	☐	☐	A copy of the alarm plans and the owner's manual shall be maintained at the FACU. It is suggested that the plans and manual be stored in a PVC capped pipe container mounted next to the FACU.
36	☐	☐	Access keys for the FACU and pull stations shall be provided and labeled for placement in the Knox box.
* Note: additional testing criteria is found in NFPA 72 7-2.			

Rural Guide

Rural Fire Access



Reflective Rural Address Markers

1. For those residents who wish to identify their driveway entrances with a highly reflective address number, the following signage is available and recommended by the Corvallis Rural Fire Protection District. The cost will be borne by the homeowner. For ordering information, call 541-766-6961.

2. An all-weather fiberglass white delineator post provided with a high intensity reflective tape background, 3 inches wide, with 4 inches in height and blue address numbers applied to both sides. The marker is to be installed adjacent to the entrance driveway outside of the public street right of way and visible to traffic from both directions. The post is 66 inches high and installed 18 inches into the ground.

3. Product information: Fiberglass delineator post = Carsonite CIB-390 with an anchor on the bottom, or equivalent. High intensity background tape: 3M 3870SIL-CL, 3 inch width or equivalent. Blue transparent tape: 3M Blue EC film 1175S or equivalent.]

Rural Water Supply

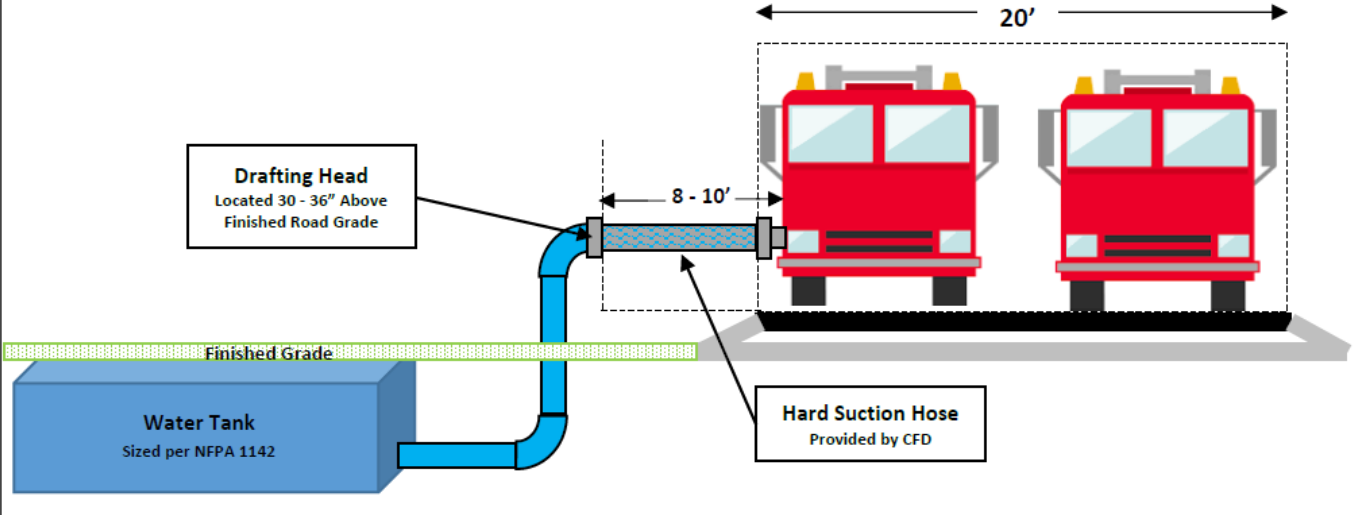
Rural Water Supply Access

The fire flow for rural buildings exceeding 3,600 square feet without an adequate and reliable water supply system is calculated using NFPA 1142. If it is determined that an onsite water supply must be provided, the following access requirements to that water supply shall apply.

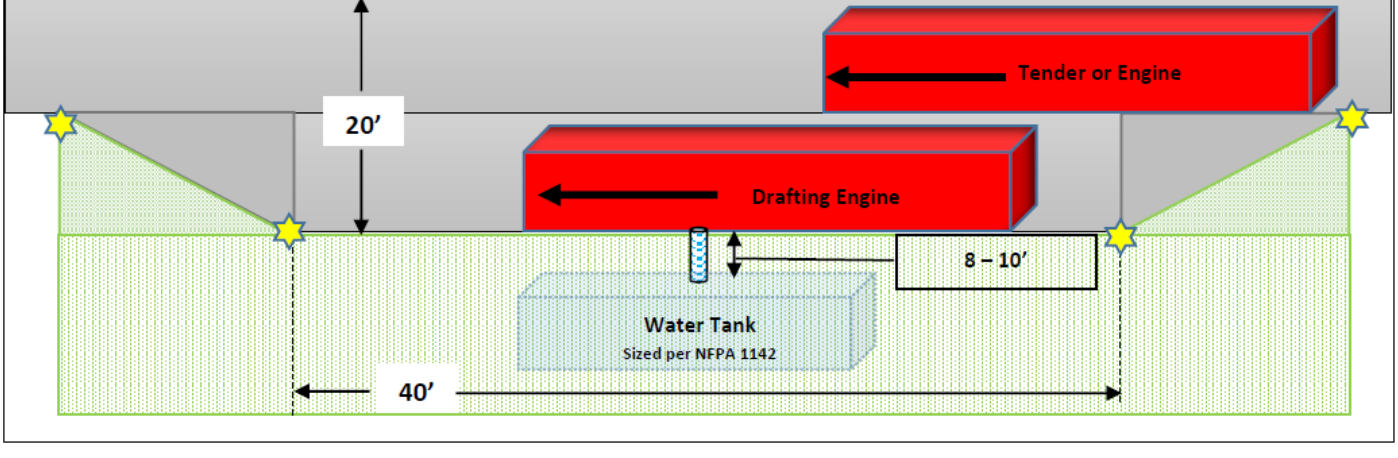
Specifications:

1. The dry hydrant drafting connection shall be placed 30 - 36" above the finished road grade.
2. The dry hydrant drafting connection shall be located 8 – 10' from the drivable surface.
3. The drafting site turnout shall be a minimum of 20' in width for a distance of 40' adjacent to the drafting connection.
4. The drafting connection shall be centered within the 40' pullout.

Drafting Site Turnout Profile



Drafting Site Turnout Overhead View



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Wildland Urban Interface

Wildland-Urban Interface

Standard

1) Parcels in the geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels (wildland-urban interface areas) shall also be subject to OFC Section 304.1.2 and the International Wildland-Urban Interface Code.

2) Weeds, grass, vines or other growth that is capable of being ignited and endangering property, shall be cut down and removed by the *owner* or occupant of the premises. Vegetation clearance requirements in urban-wildland interface areas shall be in accordance with the *International Wildland-Urban Interface Code*. (OFC 304.1.2).

3) For egress and access concerns in wildland-urban interface locations, the *fire code official* may be guided by the *International Wildland-Urban Interface Code* (OFC D102.1.1).

Specifications

1) **Hazardous Vegetation.** The person owning, possessing, or having the care or custody of any lot or parcel of land shall cut, as close to the ground as is reasonably practical, and shall remove or destroy all brush, grass, weeds, thistles, uncultivated blackberries and other uncultivated vines, and other vegetation growing at a height of 10" or more between the months of June 1 and September 30 of each year, or when determined by the fire chief to be a fire hazard. When the fire chief determines that total removal of growth is impractical due to size or environmental factors, approved fuel breaks shall be established. Minimum width of a fuel break adjacent to public sidewalks, streets, bikeways, and trails shall be 10 feet. Minimum width of fuel breaks along property lines and around combustible structures shall be 30 feet unless determined to be impractical by the fire chief (OFC/CMC 304.1.2.1).

2) **Defensible Space.** An area either natural or manmade, where material capable of allowing a fire to spread unchecked has been treated, cleared or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

3) **Fuel Break.** An area, strategically located for fighting anticipated fires, where the native vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled. Fuel breaks divide fire-prone areas into smaller areas for easier fire control and to provide access for firefighting.

4) **Fuel modification.** Buildings or structures, shall comply with the *fuel modification* distances contained in Table 603.2. For all other purposes the *fuel modification* distance shall not be less than 30 feet. Distances specified in Table 603.2 shall be measured on a horizontal plane from the perimeter or projection of the building or structure (IWUIC 603.2).

Table 603.2
Required Defensible Space

WUI Area	Fuel Modification Distance (Feet)
Moderate Hazard	30
High Hazard	50
Extreme Hazard	100

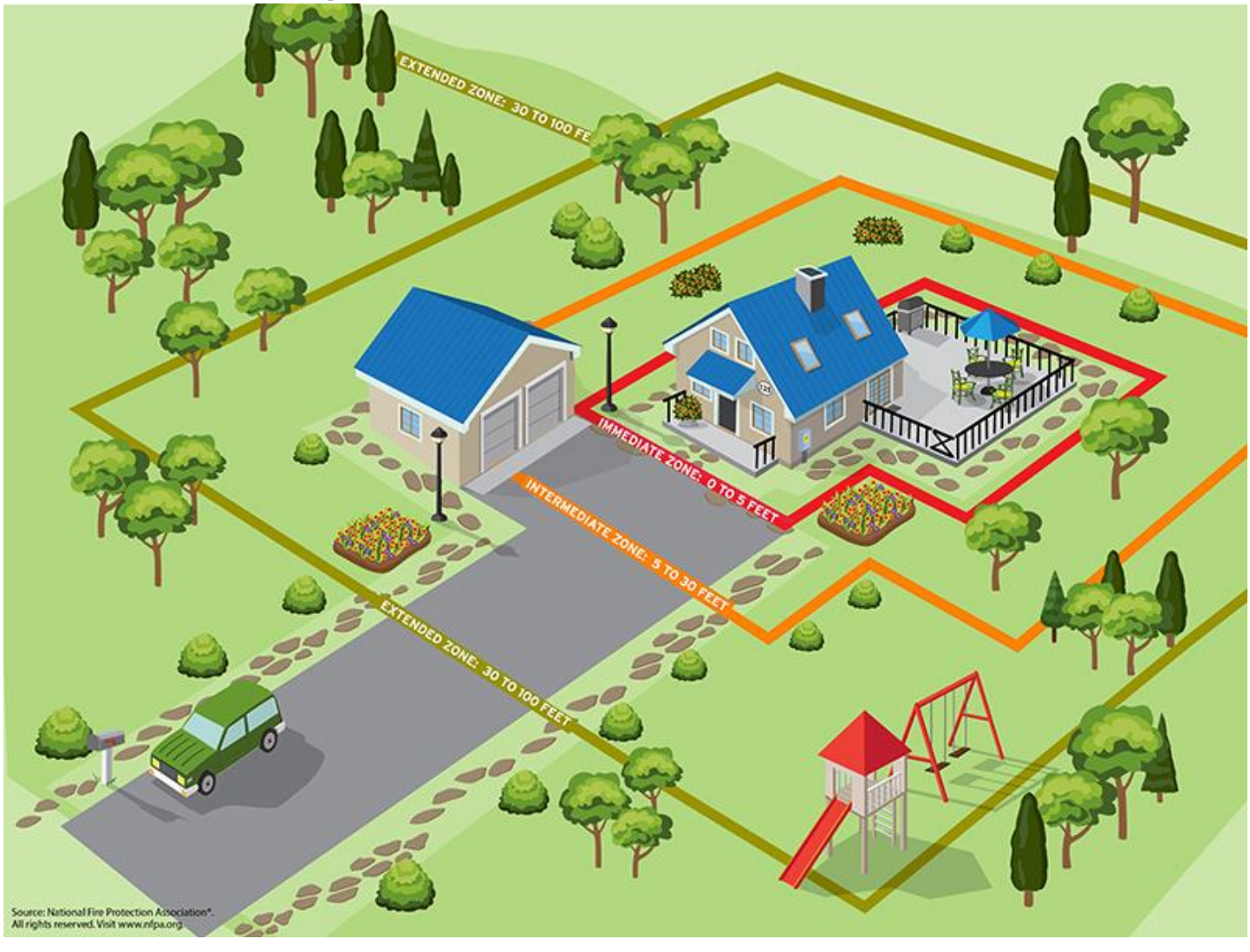
5) **Responsible party.** Persons owning, leasing, controlling, operating or maintaining buildings or structures requiring defensible spaces are responsible for modifying or removing nonfire-resistive vegetation on the property owned, leased or controlled by said person. Maintenance of the *defensible space* shall include modifying or removing nonfire-resistive vegetation and keeping leaves, needles and other dead vegetative material regularly removed from roofs of buildings and structures (IWUIC 603.2.1).

6) **Trees.** Trees are allowed within the *defensible space*, provided the horizontal distance between crowns of adjacent trees and crowns of trees and structures, overhead electrical facilities or unmodified fuel is not less than 10 feet. Tree crowns extending to within 10 feet of any structure shall be pruned to maintain a minimum horizontal clearance of 10 feet. Tree crowns within the *defensible space* shall be pruned to remove limbs located less than 6 feet above the ground surface adjacent to the trees (IWUIC 603.2.2).

7) **Groundcover.** Deadwood and litter shall be regularly removed from trees. Where ornamental vegetative fuels or cultivated ground cover, such as green grass, ivy, succulents or similar plants are used as ground cover, they are allowed to be within the designated *defensible space*, provided they do not form a means of transmitting fire from the native growth to any structure (IWUIC 603.2.3).

8) **WUI mitigation may not be conducted within protected natural features areas without a permit.**

NFPA FireWise Program



Immediate zone

The home and the area 0-5’ from the furthest attached exterior point of the home; defined as a non-combustible area. Science tells us this is the most important zone to take immediate action on as it is the most vulnerable to embers. START WITH THE HOUSE ITSELF then move into the landscaping section of the Immediate Zone.

- Clean roofs and gutters of dead leaves, debris and pine needles that could catch embers.
- Replace or repair any loose or missing shingles or roof tiles to prevent ember penetration.
- Reduce embers that could pass through vents in the eaves by installing 1/8 inch metal mesh screening.
- Clean debris from exterior attic vents and install 1/8 inch metal mesh screening to reduce embers.
- Repair or replace damaged or loose window screens and any broken windows Screen or box-in areas below patios and decks with wire mesh to prevent debris and combustible materials from accumulating.
- Move any flammable material away from wall exteriors – mulch, flammable plants, leaves and needles, firewood piles – anything that can burn. Remove anything stored underneath decks or porches.

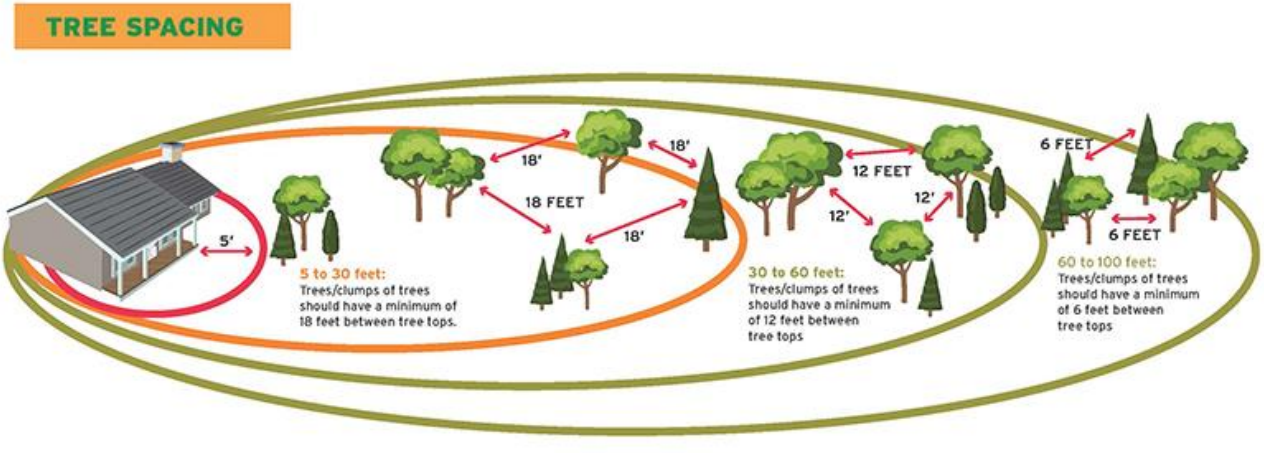
Intermediate zone

- 5-30’ from the furthest exterior point of the home. Landscaping/hardscaping- employing careful landscaping or creating breaks that can help influence and decrease fire behavior
- Clear vegetation from under large stationary propane tanks.
- Create fuel breaks with driveways, walkways/paths, patios, and decks.
- Keep lawns and native grasses mowed to a height of four inches.
- Remove ladder fuels (vegetation under trees) so a surface fire cannot reach the crowns. Prune trees up to six to ten feet from the ground; for shorter trees do not exceed 1/3 of the overall tree height.
- Space trees to have a minimum of eighteen feet between crowns with the distance increasing with the percentage of slope.
- Tree placement should be planned to ensure the mature canopy is no closer than ten feet to the edge of the structure.
- Tree and shrubs in this zone should be limited to small clusters of a few each to break up the continuity of the vegetation across the landscape.

Extended zone

- 30-100 feet, out to 200 feet. Landscaping – the goal here is not to eliminate fire but to interrupt fire’s path and keep flames smaller and on the ground.
- Dispose of heavy accumulations of ground litter/debris.
- Remove dead plant and tree material.
- Remove small conifers growing between mature trees.
- Remove vegetation adjacent to storage sheds or other outbuildings within this area.
- Trees 30 to 60 feet from the home should have at least 12 feet between canopy tops.*
- Trees 60 to 100 feet from the home should have at least 6 feet between the canopy tops.*

**The distances listed for crown spacing are suggested based on NFPA 1144. However, the crown spacing needed to reduce/prevent crown fire potential could be significantly greater due to slope, the species of trees involved and other site specific conditions. Check with your local forestry professional to get advice on what is appropriate for your property.*



The Wildland Urban Interface (WUI) Mitigation Permit

This is a voluntary permitting process initiated by the property owner; the Corvallis Fire Department (CFD) does not require this activity.

When referenced in this document, the term "Natural Features" shall be in accordance with DDI15-00004, and includes areas containing the following: Highly Protected Significant Vegetation (HPSV), Partially Protected Significant Vegetation (PPSV), Riparian Corridors (both highly and partially protected), and Wetlands.

This procedural document does not permit activities otherwise prohibited by State or Federal resource protections or permit requirements, and does not obviate the need for State or Federal permits if otherwise required.

1. Through the Community Development Department, confirm the location of all protected natural features areas on the property.
    a. If there are no natural features, a WUI permit is not required. The owner may conduct WUI Mitigation in areas without protected natural features. **Please note, there are additional natural hazard areas described in the Land Development Code, and any activities occurring within these areas shall comply with the LDC. These additional areas include floodways, mapped Highly Protected Floodplains, mapped Landslide Hazard areas, and areas with slopes in excess of 35 percent. All activities within these natural hazard areas shall comply with Land Development Code requirements, which include tree removal restrictions.** DDI15-00004 does not provide any special allowances for fire abatement activities within these natural hazard areas.
    b. If the owner would like to conduct WUI Mitigation in areas with protected natural features, proceed with the process outlined in steps 2-7, in order.
    c. **Do not conduct any WUI Mitigation within protected natural features areas without an approved plan and permit.**

2. Contract with a State certified Accredited Assessor to develop a WUI Mitigation plan within the protected natural features areas.
    a. The ODF District Forester at the local office in Philomath (541-929-9151) can provide information regarding State certified Accredited Assessors, and can assist anyone interested in becoming a State certified Accredited Assessor.
    b. The requirements to become an Accredited Assessor can be found in OAR 629-044-1100/1105.
    c. The WUI Mitigation plan shall be consistent with provisions within ORS 629-044, the 2012 International Wildland Urban Interface Code (IWUIC), and the NFPA Firewise program.
    d. The WUI Mitigation plan shall describe in detail the activity proposed, justification for that activity, and the specific location of each occurrence of that activity. **Wildfire prevention activities may occur only within a buffer area located no more than 100 ft. from the property line**.
        i. The site plan shall include slope by 10' contours, and any protected natural features on the property.
        ii. Each tree in excess of 8-inches dbh shall be described by size and type, and identified on the site plan with a description of any proposed pruning, thinning, or removal.
            1. The removal of native tree species, regardless of the trunk size of the tree(s), within mapped Highly Protected Significant Vegetation and/or Partially Protected Significant Vegetation areas, may be approved only when the applicant submits a Significant Vegetation Management Plan that is approved by the Community Development Director.
            2. The removal of native tree species, regardless of the trunk size of the tree(s), within mapped Riparian Corridors and/or Wetlands, may be approved only when the applicant submits an Arborist Report that is approved by the Community Development Director.
            3. Any activities occurring within natural hazard areas (i.e. floodways, mapped Highly Protected Floodplains, Landslide Hazard area, and areas with slopes in excess of 35%) shall fully comply

with the LDC. DDI15-00004 does not provide any special allowances for fire abatement activities within these natural hazard areas.

iii. Any ladder fuels shall be specified by size and type, and identified on the site plan with a description of any proposed thinning or removal.

iv. A geographic area of grasses shall be identified on the site plan with a description of the proposed mowing activity, and any equipment to be used. The proposed finished height of those grasses shall be specified.

v. Any proposed or existing firebreaks, defensible space, or structures shall be identified on the site plan, including dimensions.

vi. Any proposed or existing access roads, sidewalks, or trails shall be identified on the site plan, including dimensions and improved or unimproved surfaces.

vii. Any proposed work within firebreaks or defensible space shall be described in detail and consistent with items i, ii, and iii above.

viii. The justification to conduct each prescribed activity within a protected natural features area shall be specifically referenced to the applicable sections within ORS 629-044, the 2013 International Wildland Urban Interface Code (IWUIC), or the NFPA Firewise program.

ix. All structures on contiguous parcels shall be identified on the site plan by footprint, and the site plan shall provide dimensions from nearest point of those structures to the property line.

x. All access roads from contiguous properties shall be identified on the site plan with dimensions and surface type.

xi. Any proposed use of vehicles or heavy equipment shall be described in detail, and areas of proposed activity shall be included on the site plan;

xii. All debris created by this WUI Mitigation process shall be removed from the property daily. A detailed plan for debris removal shall be submitted with the Accredited Assessor's plan. Burning of this material is not authorized at any time.

3. Apply for the WUI Mitigation permit through Corvallis Development Services (DS).
   a. DS will create an LND case to track permit status.

4. DS will route plans to Corvallis Fire, and the Urban Forester (Parks) – there will be a TWO (2) week review period.
   a. CFD will verify the Accredited Assessor certification through ODF.
   b. CFD/CD/DS/Parks will jointly review the Accredited Assessor's WUI Mitigation plan to ensure that the plan follows best practices for WUI Mitigation, without causing unnecessary damage to the protected natural features.
   c. CFD/CD/DS/Parks may require revisions, or issue conditions with the approval of the WUI Mitigation plan.
   d. If revisions are required, CFD/CD/DS/Parks will have an additional ONE (1) week review period after receiving the revised documents/drawings from the applicant.

5. Once the Accredited Assessor's WUI Mitigation plan is approved by CFD/CD/DS/Parks, the permit and approved plan may be retrieved at Development Services. Site work may commence after Development Services staff (the City's Land Use Inspector) have completed a boundary inspection. The boundary inspection shall clearly demonstrate that all site work will be conducted within 100 ft. of property lines, and only in areas specified by the Accredited Assessor's WUI Mitigation plan. Flags or fencing shall be used to clearly delineate the boundaries where wildfire abatement activities will be occurring.
   a. The WUI Mitigation permit and approved plan must be onsite, and in the possession of any contractor conducting any WUI Mitigation work.
   b. Approval of the WUI Mitigation permit will be good for a period of 60 days from the day of issuance. After the 60-day period has ended, the case will be closed.

6. CFD/CD/DS/Parks will conduct joint inspections of the property to ensure that:

a. All of the described site work within the approved plan is being conducted as specified by the Accredited Assessor.
b. The site work is being conducted only within the specific boundaries described within the Accredited Assessor WUI Mitigation plan.
c. No further WUI Mitigation activity shall be conducted on the property after the final inspection for the permitted year.

7. Except when regulatory changes occur, the WUI Mitigation permit may be renewed by the property owner for up to 5-years.
   a. The property owner shall apply for plan renewal through DS **prior** to commencing WUI Mitigation work annually.
   b. All of the previous permitting and approved plan conditions shall apply to renewals.
   c. CFD/CD/DS/Parks will jointly inspect the WUI Mitigation activity.
   d. Any variation/amendments to the original WUI Mitigation plan shall require a new plan submittal and approval process.

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Fire Escapes and Fire Watch

Fire Escapes

Standard

Fire escape *stairs* shall comply with OFC Sections 1104.16.1 through 1104.16.7.

Specifications

1. Existing fire escape *stairs* shall be permitted in existing buildings but shall not constitute more than 50 percent of the required *exit* capacity (OFC 1104.16.1)

2. Doors and windows within 10 feet of fire escape *stairways* shall be protected with 3/4-hour opening protectives in unsprinklered buildings (OFC 1104.16.2).

3. Fire escape *stairways* shall be permitted to remain if the rise does not exceed 8-1/4 inches and the run is not less than 9 inches (OFC 1104.16.2 and 1104.10).

4. Fire escape *stairs* and balconies shall be provided with a top and intermediate handrail on each side. *Handrail* height, measured above *stair* tread nosings, shall be uniform, not less than 30 inches and not more than 42 inches (OFC 1104.13.1).

5. The lowest balcony shall not be more than 18 feet from the ground. Fire escape *stairways* shall extend to the ground or be provided with counterbalanced *stairs* reaching the ground (OFC 1104.16.6).

6. **Materials and strength** (OFC 1104.16.5)
    a. Components of fire escape *stairs* shall be constructed of noncombustible materials.
    b. Fire escape *stairs* and balconies shall support the dead load plus a live load of not less than 100 pounds per square foot.

7. **Examination.** Fire escape *stairways, rails, ladders and* balconies, shall be examined for structural adequacy and safety in accordance with Section 1104.16.5 and the *Oregon Structural Specialty Code* by a registered design professional or others acceptable to the *fire code official* every five years. An inspection report shall be submitted to the *fire code official* after such examination (OFC 1104.16.5.1).

8. **Unsafe/imminent hazard condition.** When a fire escape component is determined to be in an unsafe/imminent hazard condition, the *fire code official* and *building official* shall be notified immediately. Where required, the building shall either be evacuated or an *approved fire watch* shall be provided until the fire escape has been repaired and approved by the *building official* (OFC 1104.16.5.2).

9. **Posting of fire escape conditions.** Each fire escape shall have signage indicating current conditions posted at the lowest balcony or as directed by the *fire code official* (OFC 1104.16.5.3). Signage shall be clearly visible, legible, and weather resistant and indicate;
    a. Condition of fire escape.
    b. Date of posting.
    c. Site address.
    d. Other as directed by the *fire code official*.

10. **Maintenance.** Fire escape stairways, balconies, rails and ladders shall be kept clear and unobstructed at all times and shall be maintained in good working order. They shall be maintained free of corrosion (OFC 1104.16.7).

Fire Watch

Standard

When, in the opinion of the fire code official, it is essential for the safety of the public and/or occupants, the owner or agent or lessee shall provide one or more fire watch personnel.

Specifications

When a fire watch is required in an existing structure(s) or portions thereof, or for a fire protection system that is out of service, or other fire hazard situation, it shall be in accordance with this Guide (OFC Appendix T). A fire watch shall have ALL of the elements listed in this section.

1. At least one dedicated person is required to conduct patrols (OFC T103.2).
    a. Additional personnel shall be added as necessary to meet the interval requirements.

2. All personnel shall meet the following criteria and be:
    a. At least 18 years of age.
    b. Competent to identify fire hazards.
    c. Capable of effectively communicating the need for a fire department response.
    d. Physically capable to perform patrols and self-preservation.
    e. Familiar with the structure and the emergency plan for the structure.

3. The structure or portions thereof shall be checked for fire hazards every 15 minutes or as required by the *fire code official*.

4. At least one method of communication to initiate a fire department response is required.
    a. Fire watch personnel shall have a cellular phone or other means of communication acceptable to the *fire code official*.
    b. In the event of a fire, fire watch personnel shall alert occupants and take appropriate action.

5. An activity log sheet is required to document the activities of the fire watch. The log shall list the name of the person(s) who conducted the fire watch, time of each activity, and description of activity performed.

6. A fire watch shall continue until the initiating circumstances have been abated and the *fire code official* has been notified.

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Operational Permits

LPG Storage Limits

CMC Section 7.08.160 Establishment of limits in which storage of liquefied petroleum gases is to be restricted.

1) **6104.2.1 LPG Storage Limits.** The limits as referenced in OFC Section 6104.2 apply to all properties in the city except for those sites in General Industrial and Intensive Industrial districts which will be reviewed for quantities in excess of 2000 gallons of liquefied petroleum gas. Upon completion of the Plan Compatibility Review procedures of the Land Development Code, approval for storage of such additional quantities may be granted by the fire chief.

Above Ground Storage Tanks Limits

CMC Section 7.08.170 Establishment of limits in which storage of flammable or combustible liquids in outside above ground tanks is prohibited.

1) **5704.2.9.6.1 Locations where above ground tanks are prohibited.** Storage of Class I and II liquids in above ground tanks outside of buildings is prohibited within the limits established by law as the limits of districts in which such storage is prohibited. The limits referred to above, in which storage of Class I and II liquids in outside above ground tanks is prohibited, include all areas of the City except those sites in General Industrial and Intensive Industrial districts which may hereafter be given specific approval for such use by the fire chief after review through the Plan Compatibility Review procedure of the Land Development Code

2) **5706.2.4.4.1 General industrial and intensive industrial districts.** The limits referred to in OFC Section 5706.2.4.4 in which storage of Class I and II liquids in outside above ground tanks is prohibited, include all areas of the City except those sites in General Industrial and Intensive Industrial districts which are hereafter given specific approval for such use by the fire chief after review through the Plan Compatibility Review procedure of the Land Development Code.

Emergency Responder Radio Coverage

Standard:
All new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems (OFC 510.1.1).

Specifications - New Construction
Emergency responder radio coverage must be provided in the following new buildings and locations (OFC 510.1.1/OSSC 918.1):

1. Any building with one or more basement or below grade building levels
2. Any underground building
3. Any building more than five stories in height
4. Any building 50,000 square feet (4645 m2) in size or larger
5. Any building that, through performance testing, does not meet the requirement of Section 510

CFD Radio System Information			
Radio system technology used:		VHF Analog	Repeater Type: VHF Analog
Frequency Range	Repeater:	Vinyard Hill Receive: 156.195, pl 167.9	Vinyard Hill Transmit: 154.340, pl 167.9
		Location: 44-38-24.4 N, 123-16-29.4 W	Elevation: 1,500’
	Simplex:	Operations: 158.820, pl 167.9	
		Location: 44-34-04.4 N, 123-15-40.4 W	Elevation: 229’

Specifications - Existing Buildings

1. Existing buildings shall be provided with approved radio coverage for emergency responders (OFC 510.2)

2. Existing buildings that do not have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building, shall be equipped with such coverage according to one of the following (OFC 1103.2)
    a. Whenever an existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1, Exception 1.
    b. Within a time frame established by the adopting authority.
4. See the ERRC Checklist for specific installation requirements and testing criteria.

Fire Prevention Division
Fire Plan Review Guide

ERRC Checklist		CFD Occupancy ID:
Building Name:		
Building Address:		
Building Owner:	**ERRC Contractor:**	
Building Height:	**Building Square Footage:**	**Construction Type:**
Number of Floors Below Grade:	**Number of Floors Above Grade:**	

Requirement

2019 Oregon Fire Code: 510.1 Emergency responder radio coverage in new buildings.
All new buildings, as described in Section 510.1.1, shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building.

Scope

This document is intended to assist building owners and designers in determining general ERRC requirements within the jurisdiction of the Corvallis Fire Department, and to provide the technical criteria necessary to design a project. Preliminary approval of this document is not intended to approve any part of a system that does not comply with applicable codes, FCC rules, and all conditions of FCC license holder use agreements.

This checklist shall be completed, including all signatures as required, and provided to the Building Official at time of building permit application where a proposed new building meets any one of the following criteria:

- ☐ Any building with one or more basement or below-grade building levels (OSSC 918.1/OFC 510.1.1).
- ☐ Any underground building (OSSC 918.1/OFC 510.1.1).
- ☐ Any building more than five or more stories in height (OSSC 918.1/OFC 510.1.1).
- ☐ Any building 50,000 square feet in size or larger (OSSC 918.1/OFC 510.1.1).
- ☐ Any building that, through performance testing, does not meet the requirement of Section 510 (OFC 510.1.1).

*****Unless specifically exempted by the Fire Marshal, this building shall undergo performance testing in accordance with OFC 510.5.3*****

Acknowledgement:

1. I understand this building will need to undergo radio coverage performance testing. If radio coverage does not meet minimum performance standards, equipment shall be installed in accordance with OFC Section 510 to achieve the minimum performance levels.
2. I understand that this ERRC system is an Oregon Fire Code requirement associated with my building, and once installed this system shall be maintained operational by conducting annual inspections and performance testing.

Business Owner/Manager Signature **Date**	**CFD Representative**

Pass	Fail	Frequency	Test Type	Noise Floor Validation	
☐	☐	Vinyard Mountain	☐ Acceptance	Pre-Test Level	
☐	☐	Operation's	☐ Annual	Post-Test Level	

My-Comm., Inc.

3rd Party NF Testing Agency **Test Date**

*****The building owner shall maintain documentation of the ERRC system acceptance/maintenance testing at the system amplifier*****

CFD Radio System Information

Radio system technology used:		VHF Analog	Repeater Type: VHF Analog
Frequency Range	Repeater:	Vinyard Hill Receive: 156.195, pl 167.9	Vinyard Hill Transmit: 154.340, pl 167.9
		Location: 44-38-24.4 N, 123-16-29.4 W	Elevation: 1,500'
	Simplex:	Operations: 158.820, pl 167.9	
		Location: 44-34-04.4 N, 123-15-40.4 W	Elevation: 229'

Signal Booster & Survivability Requirements

- ☐ **OFC 510.4.2.4(1) Signal Booster.** All signal booster components shall be contained in a NEMA 4-type waterproof cabinet.
- ☐ **OFC 510.4.2.4(2) Signal Booster.** Battery systems used for the emergency power source shall be contained in a NEMA 3R or higher-rated cabinet.
- ☐ **OSSC 918.3(3) Survivability.** All system backbone pathways between signal boosters, donor antennae, and secondary power supplies and between head end and remote units for fiber-based systems shall be protected by a vertical shaft enclosure in accordance with Section 713.
- ☐ **OSSC 918.3(4) Survivability.** Primary cable riser pathways between floors shall be protected in shaft enclosures constructed in accordance with Section 713.4 or an approved equivalent. Connections between riser and feeder cables shall occur within the 2-hour shaft enclosure.
- ☐ All system components, including horizontal cable, shall be permanently mounted and protected from damage.

ERRC Testing & Maintenance

The building shall undergo performance testing in accordance with OFC 510.5.3 prior to the Certificate of Occupancy being issued. Testing shall take place after installation of all roofing systems; exterior walls, glazing and siding/cladding; and all permanent interior walls, and partitions. If the building fails the OFC 510.5.3 test, a distributed antenna system with FCC certified signal booster or other approved system shall be installed to achieve the required level of radio coverage.

When a signal booster system is required, a pre-test shall be conducted by a CFD contracted 3rd party prior to the installation/activation of the system to determine the existing noise floor. During the acceptance testing process, a second 3rd party evaluation of the noise floor shall be conducted to ensure that the new system will not interfere with existing radio communications. A system shall fail the acceptance test if the noise floor increases more than .095 dB over the pre-test levels. The building owner/agent shall be responsible for the cost of the noise floor testing. The cost of one pre-test and one post-test shall be included in the ERRC permit fee. Any additional required testing shall incur a $500 reinspection fee.

*****All testing and maintenance shall validate the Vinyard Mountain and Operation's frequencies*****

Acceptance Test Criteria per OFC Section 510

- ☐ **510.4.1 Radio signal strength.** The building shall be considered to have acceptable ERRC when the Vinyard Mountain and Operation's frequency signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 - 510.4.1.3.
- ☐ **510.4.1.1 Minimum signal strength into the building.** The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area. The inbound signal level shall be sufficient to provide not less than a Delivered Audio Quality (DAQ) of 3.0 or an equivalent Signal-to-Interference-Plus-Noise Ratio (SINR) applicable to the technology for either analog or digital signals.
- ☐ **510.4.1.2 Minimum signal strength out of the building.** The minimum outbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area. The outbound signal level shall be sufficient to provide not less than a DAQ of 3.0 or an equivalent SINR applicable to the technology for either analog or digital signals.
- ☐ **510.4.1.3 System performance.** Signal strength shall be sufficient to meet the requirements of the applications being utilized by public safety for emergency operations through the coverage area.
- ☐ **510.4.2.4(6) Signal booster requirements.** The installation of amplification systems, or systems that operate on, or provide the means to cause interference, on any emergency responder radio coverage networks shall be coordinated and approved by the Fire Marshal. The system installation shall be coordinated with, and shall not interfere with, the function of any existing DAS systems.
- ☐ **510.4.2.3 Standby power.** Emergency responder radio coverage systems shall be provided with dedicated standby batteries or provided with 2-hour standby batteries and connected to the facility generator power system in accordance with Section 1203. The standby power supply shall be capable of operating the emergency responder radio coverage system at 100-percent system capacity for a duration of not less than 12 hours.
- ☐ **Grid Test conducted per OFC 510.5.3.** The Vinyard Mountain and Operations frequencies shall be grid tested using a calibrated portable radio in 20 equal test locations on each floor. Coverage of the building shall be at least 95 percent. Failure of more than one test area shall result in failure of the test.
- ☐ **Spurious Oscillation Test.** As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster.
- ☐ **510.4.2.5 System monitoring.** The emergency responder radio enhancement system shall be monitored by a listed fire alarm control unit, and shall sound an audible automatic supervisory signal at a constantly attended on-site location.
- ☐ **510.6.3 Field testing.** CFD personnel shall conduct field-testing of the Vinyard Mountain and Operations frequencies to verify the required level of radio coverage.

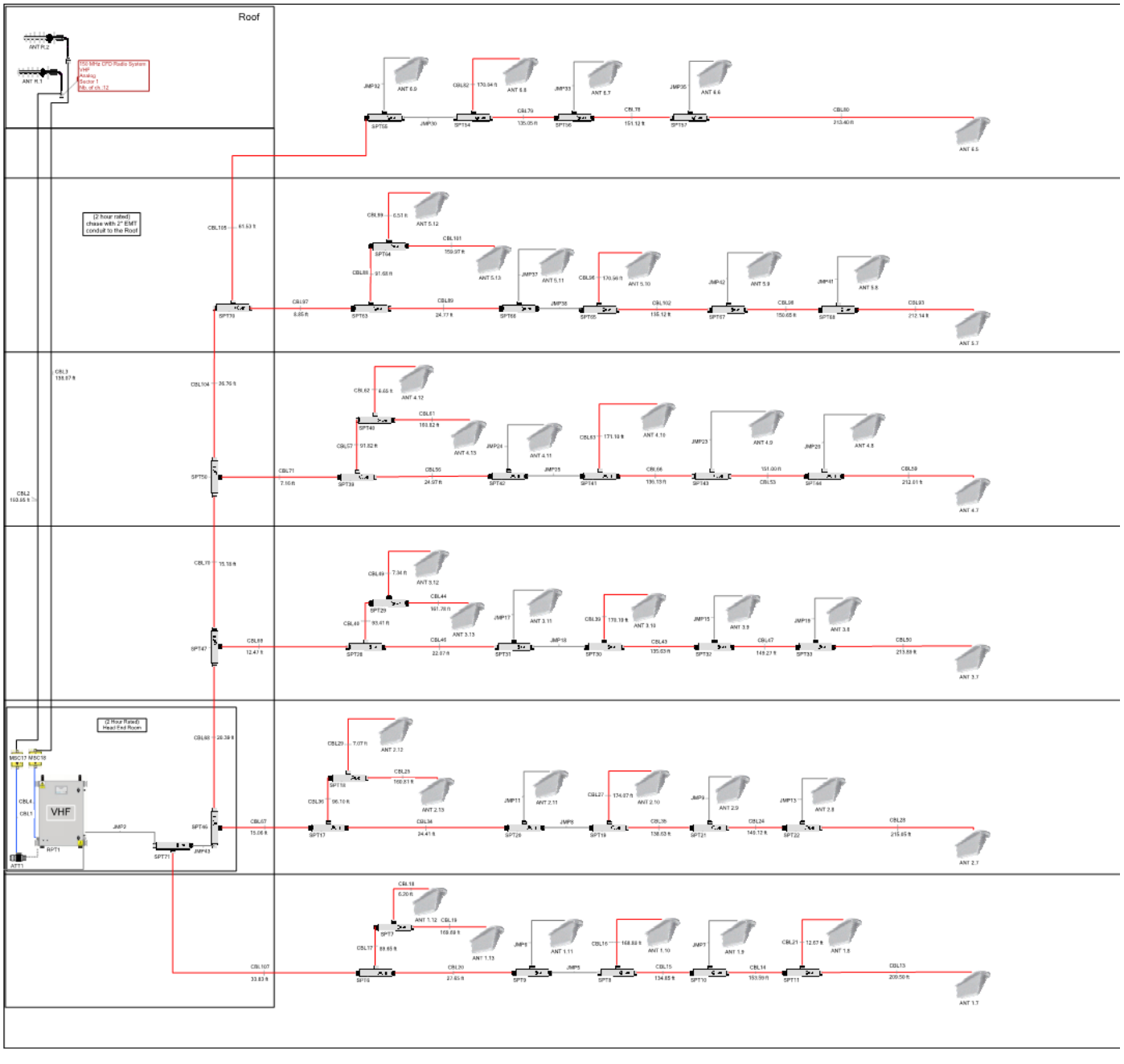
Annual Maintenance Requirement per OFC Section 510

510.6 Maintenance. The ERRC system shall be maintained operational on the Vinyard Mountain and Operation's frequencies at all times.

510.6.1 Testing and proof of compliance. The ERRC system shall be inspected and tested annually or whenever structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

- ☐ **Grid Test.** In-building coverage test as described in Section 510.5.3.
- ☐ **Signal Strength.** Signal boosters shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.
- ☐ **Secondary Power.** Backup batteries and power supplies shall be tested under load of a period of 1-hour.
- ☐ All other active components shall be checked to verify operation within the manufacturer's specifications.
- ☐ **Spurious Oscillation Test**
- ☐ **Documentation.** An annual report shall be submitted to the Fire Marshal to verify compliance with Section 510.5.3
- ☐ **510.6.3 Field Testing.** CFD personnel shall have the right to enter the building at any reasonable time to conduct field-testing to verify the required level of radio coverage.

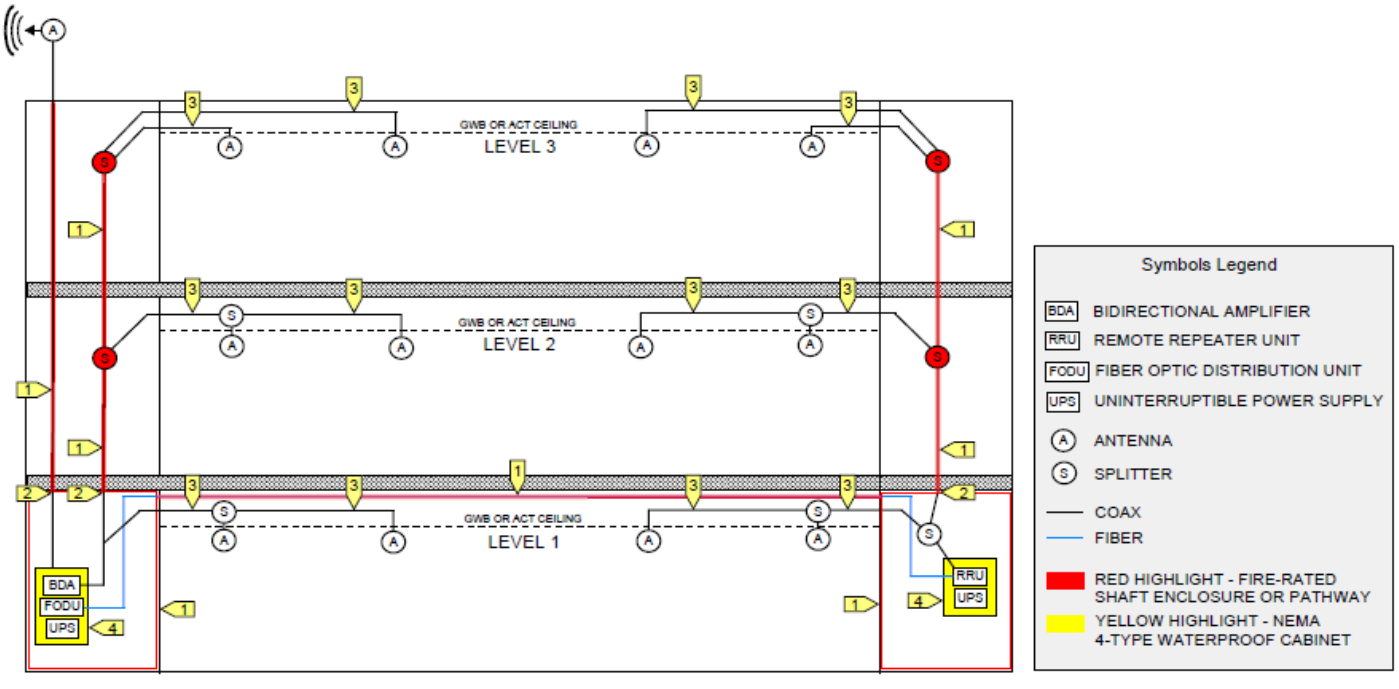
DAS Layout



ERRC Survivability

Emergency Responder Radio Coverage - Pathway Survivability
2019 OSSC Section 918.3

1. All system backbone pathways (riser cables, donor antenna cables, BDA cables) between signal boosters, donor antenna and secondary power supplies and between head end and remote units for fiber-based systems shall be protected by a shaft enclosure in accordance with OSSC Section 713.4 or an approved equivalent
2. The connection between the riser and feeder coaxial cables shall be made within the shaft enclosure and passage of the feeder cable through the shaft enclosure shall be protected by a through-penetration firestop system in accordance with OSSC Section 714
3. Feeder cables are not required to be provided with fire-rated protection but shall be provided with physical protection in accordance with the Electrical Code
4. All signal booster components shall be contained in a NEMA 4-Type waterproof cabinet (Emergency power battery systems shall be contained in a NEMA 3R-Type or higher-rated cabinet)



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High-Piled Combustible Storage

Standard

1) Fire department vehicle access to buildings used for *high-piled combustible storage* shall comply with the applicable provisions of Chapter 32 (OFC 503.1.3).

Specifications

1. High Piled Combustible Storage. Fire department access doors, aisles and *exit* doors shall not be obstructed (OFC 3205.4).

2. Fire apparatus access roads shall be provided within 150 feet of all portions of the *exterior walls* of buildings used for high-piled storage (OFC 3206.6).

3. Where exterior walls surrounding *high-piled storage areas* face fire apparatus access roads, such walls shall be provided with fire department access doors. Fire department access doors shall be labeled on the exterior side with the following: FIRE DEPARTMENT ACCESS DOOR DO NOT BLOCK. The lineal distance between adjacent fire department access doors shall not exceed 125 feet (OFC 3206.7).

4. A visual method of indicating the maximum allowable storage height shall be provided (OFC 3205.6).

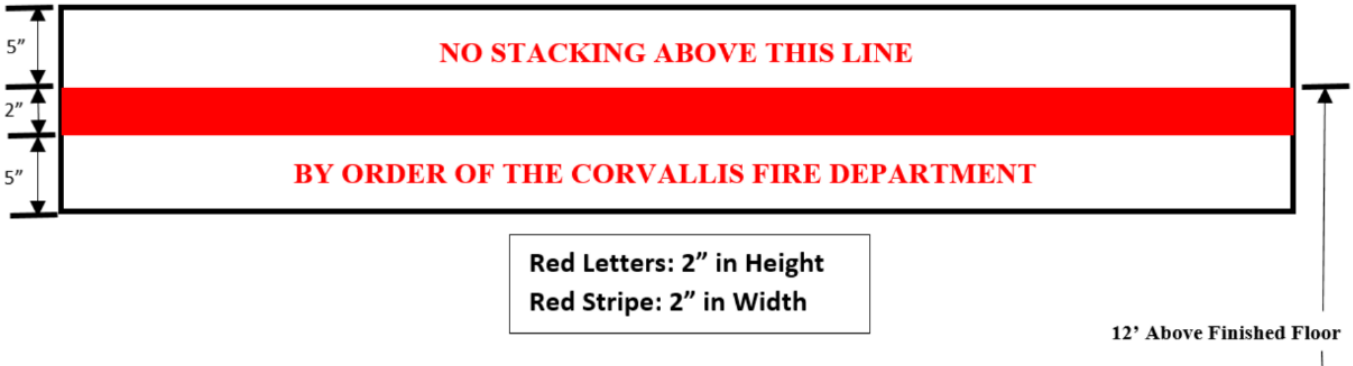
Signage/Marking of Maximum Commodity Storage Height

1. In factories, industrial storage, and retail sales occupancies where commodity storage methods or pile heights can exceed the design parameters of the sprinkler system, permanent signage shall be provided identifying the maximum allowed storage height.

2. High-piled combustible storage is storage of combustible materials in closely packed piles or combustible materials on pallets, in racks, or on shelves where the top of storage is greater than twelve (12) feet in height.

3. When required by the Chief, high-piled combustible storage also includes certain high-hazard commodities, such as rubber tires, Group A plastics, flammable liquids, idle pallets, and similar commodities, where the top of storage is greater than six (6) feet in height.

4. All high piled storage areas shall be signed identifying the maximum storage height as follows:
   a. This sign must be posted prior to building being occupied.
   b. Signage shall be displayed fifty (50) feet on center, located on storage area walls starting twenty-five (25) feet from any exterior corner.
   c. Support columns shall be marked at the maximum storage height with a three (3) inch red band, paint or tape. Lettering on columns is not required.



Cannabis or Hemp Growing, Processing, or Retails Sales

Standard

1) All cannabis or hemp businesses shall comply with the Oregon law and OLCC rules.

2) All cannabis or hemp growing, processing, or retail sales businesses shall obtain an operational permit from the Corvallis Fire Department (CMC 8.03.500.010(6)).
    a. Cannabis and Hemp operational permit applications will require endorsement from:
        - Corvallis Planning Department
        - Corvallis Public Works
        - Corvallis Development Services
        - Corvallis Police Department
        - Corvallis Fire Department

Specifications

1) No OLCC marijuana licensed facility:
    a. May be on federal property.
    b. May be at the same physical location or address as a liquor licensee licensed under ORS Chapter 471 or as a retail liquor agent appointed by the Commission.
    c. May be at the same physical location or address as a medical marijuana processing site registered with the OHA.
    d. May be at the same physical location or address as a medical marijuana dispensary registered with the OHA.
    e. With the exception of the producer license, may be in an area that is zoned exclusively for residential use.

If you are a producer:

    f. You may not be located at the same physical location or address as a medical marijuana grow site registered with the OHA, unless the grow site is also licensed under ORS 475B.080.
    g. May not be located on public land.

If you are a retailer:

    h. Except as provided in ORS 475B.109, the proposed licensed premises of a retail applicant may not be located within 1,000 feet of:
        - A public elementary or secondary school for which attendance is compulsory under ORS 339.020; or
        - A private or parochial elementary or secondary school, teaching children as described in ORS 339.030.

2) All cannabis or hemp growing, processing, or retail sales businesses shall receive a land use compatibility statement (LUCS) from the Corvallis Planning Department.

3) All cannabis or hemp growing, processing, or retails sales businesses shall obtain the appropriate construction permits and inspections. Whether for new construction or remodeling of existing buildings, local governments administer Oregon building codes and issue permits. Building code requirements are determined by the structure's "primary use" which may include production/growing, processing, storage, or sale of marijuana. Check with Corvallis Development Services to determine any required permits for a marijuana operation.
    a. Examples of when permits may be required:

- Installing new equipment
- Moving or adding walls
- Adding or removing doors or windows
- Adding counter or display cases
- Removing building improvements
- Remodeling various spaces
- Modifying electrical, plumbing, mechanical, fire alarms, fire sprinklers, security systems, heating, ventilation, air conditioning, and other systems
- Installing new signage or parking facilities

4) During construction, work with your contractor and the Corvallis Building Official to identify and schedule any required inspections. When the work is up to code, the inspector will approve it and Corvallis Development Services will issue a Certificate of Occupancy.

5) All cannabis or hemp growing, processing, or retails sales businesses shall be inspected by the Corvallis Fire Department annually. The Corvallis Fire Marshal is the authority on meeting building and fire code requirements after the Certificate of Occupancy has been issued.

Processing and Extraction Facilities

Standard

1. Plant processing or extraction process includes the act of extraction of the oils and fats by use of a solvent, desolventizing of the raw material, production of the miscella, distillation of the solvent from the miscella and solvent recovery. The use, storage, transfilling and handling of hazardous materials in these facilities shall comply with this chapter, other applicable provisions of this code and the *Oregon Structural Specialty*, *Mechanical Specialty* and *Electrical Codes (*OFC 3901.1).

Specifications

1. Existing buildings or facilities used for the processing of plants or where the medium of extraction or solvent is changed shall comply with this chapter (OFC 3901.2).

2. Extraction processes utilizing flammable gases or flammable *cryogenic fluids* shall not be located in any building containing a Group A, E, I or R occupancy (OFC 3903.2).

3. The extraction equipment and extraction processes utilizing hydrocarbon solvents shall be located in a room or area dedicated to extraction (OFC 3903.3).

4. Postprocessing and winterization involving the heating or pressurizing of the *miscella* to other than normal pressure or temperature shall be *approved* and performed in an appliance listed for such use. Domestic or commercial cooking appliances shall not be used (OFC 3903.4).

5. The use of flammable and *combustible liquids* for liquid extraction processes where the liquid is boiled, distilled or evaporated shall be located within a hazardous exhaust fume hood, rated for exhausting flammable vapors. Electrical equipment used within the hazardous exhaust fume hood shall be rated for use in flammable atmospheres. Heating of flammable or combustible liquids over an open flame is prohibited (OFC 3903.5).

6. Systems or equipment used for the extraction of oils from plant material shall be *listed* or *approved* for the specific use (OFC 3904.2).

Mobile Food Unit Operational Permit

Standard

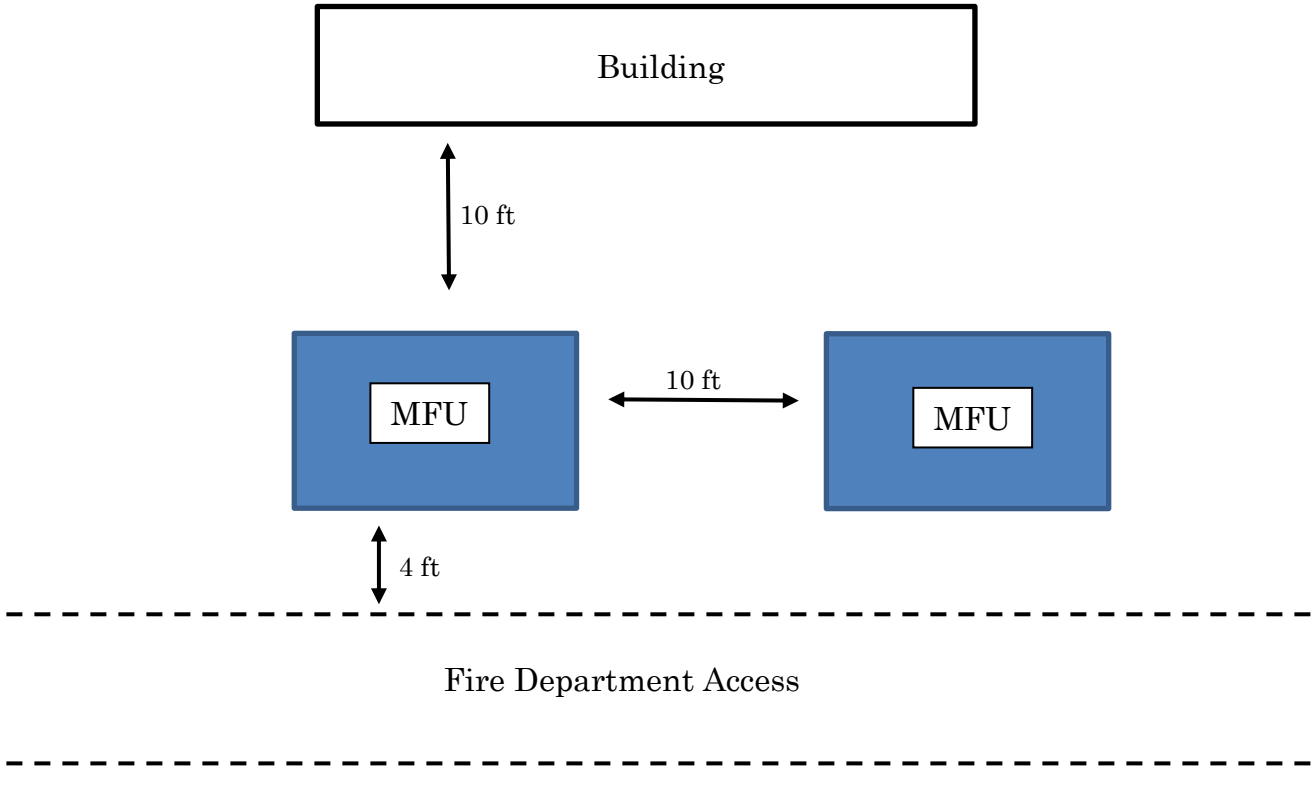
1) A Corvallis Fire Department operational permit shall be required to operate as a mobile food unit (MFU) vender within the City of Corvallis, or within the Corvallis Rural Fire Protection District for more than 7-days per calendar year. The operational permit shall be valid for 12-months from the date of issuance, and must be located on the mobile food cart at all times.

2) Cooking includes the use of open flame cooking tops, fryers, skillets, WOKS, microwave ovens, ovens, barbeques, and other specialty cookware.

3) **THE UNATTENDED COOKING OR WARMING OF FOOD IS NOT PERMITTED WITHIN A MOBILE FOOD UNIT UNDER ANY CIRCUMSTANCES, AND WILL RESULT IN IMMEDIATE REVOKATION OF THIS OPERATIONAL PERMIT**

Specifications

1) Location and access
   a. MFU shall be setback 2 feet from Right of Way.
   b. MFU shall be located a minimum of 10 feet from other MFU or structures
   c. MFU shall maintain a minimum of 4 feet access for temporary seating areas, walkways, etc. All seating must be made of flame resistant material.



2) Cooking
    a. Kitchen hood systems shall be installed per the OMSC, OFC 607, and NFPA 96
    b. Kitchen hood fire suppression systems shall be tested annually
    c. Kitchen hoods must be clean, and an annual service tag must be mounted on the hood
    d. Kitchen hood vent/exhaust fans shall be turned on when an LP-gas appliance is in use
    e. Kitchen vent hood exhaust shall terminate above, and no less than 10 feet horizontally from, adjacent structures, tents, MFU's, or natural vegetation.
    f. Installed cooking appliances, and the location of the cooking appliances within the mobile food cart, must match the approved plans
    g. All cooking equipment shall be certified for commercial use. Cooking equipment shall be installed and utilized in accordance to manufacturer's listings, UL listing, and shall be approved by the fire code official (OFC 3104.7).
    h. Household listed appliances shall NOT be used for commercial purposes (OFC 605.7).
    i. Warming of food through the use of hot plates, sterno cans, and similar devices is not considered cooking for the purposes of this operational permit, but shall be approved by the Fire Marshal (OFC 3104.15.4).
3) LP Gas
    a. LP-gas commercial food service appliances are allowed to be used for food-preparation within mobile food carts in accordance with the *International Fuel Gas Code,* the *International Mechanical Code* and NFPA 58. (OFC 6103.2.1.7)
    b. LP-gas appliances and vents necessary for their installation shall be listed for installation in recreational vehicles (NFPA 1192)
    c. The installation of each LP-gas appliance shall conform to the terms of its listing and the appliance manufacturer's installation instructions (NFPA 1192)
    d. LP-gas appliances shall be permanently mounted in place to avoid displacement.
    e. LP-gas appliances shall be listed by the manufacturer for indoor use
    f. LP-gas containers shall be located outside the mobile food cart, and securely mounted to the frame of the vehicle. Safety release valves shall be pointed away from tents, membranes structure, or mobile food cart (OFC 3104.16.2).
    g. Portable LP-gas containers shall have a minimum separation between the container and any structure of not less than 10 feet if not permanently mounted (OFC 3104.16.2.1).
    h. Portable LP-gas containers, piping, valves and fittings which are located outside and are being used to fuel equipment inside a tent, membrane, or mobile food cart shall be adequately protected to prevent tampering, damage by vehicles or other hazards and shall be located in an approved location. Portable LP-gas containers shall be fastened in place to prevent unauthorized movement (OFC 3104.16.3).
    i. LP-Gas tanks shall be located so they are not in contact with direct flame, high heat situations, or sparks. A clearance of no less than 10 feet is required between potential ignition sources and LPG tanks (OFC 6107.4).
    j. Storage or use of portable outdoor gas-fired heating appliances are prohibited inside of any occupancy when connected to the fuel gas container (OFC 603.4.2.1.1)
    k. Portable outdoor gas-fired heating appliances shall be located at least 5 feet from buildings, not located beneath or closer than 5 feet to combustible decorations and combustible overhangs, awnings, sunshades or similar combustible attachments (OFC 603.4.2.1.2 and 603.4.1.2.3).
    l. Portable outdoor gas-fired heating appliances shall be equipped with a tilt or tip-over switch that automatically shuts off the flow of gas if the appliance is tilted more than 15 degrees from the vertical (OFC 603.4.2.2.3).
    m. All food concession stands/booths shall have at least one exit for staff use that is a minimum 10 feet from cooking equipment, or as approved by the fire code official (OFC 3104.15.3). All required exits shall be not less than 24 inches in clear width.

4) Electrical
    a. Electrical pedestal hookup required, maximum of two units per pedestal.
    b. Electrical cords shall not create tripping hazards in pedestrian and vehicular circulation areas.
    c. All electrical equipment shall be listed or labeled and used in accordance with the listing or labeling instructions from the manufacturer.
    d. Identified electrical hazards shall be abated. Identified hazardous electrical conditions in permanent wiring shall be brought to the attention of the responsible code official. Electrical wiring, devices, appliances and other equipment that is modified or damaged and constitutes an electrical shock or fire hazard shall not be used (OFC 604.1).
    e. Extension cords shall be plugged directly into an approved receptacle and shall serve only ONE portable appliance (OFC 604.5.1).
    f. Extension cords shall be a minimum of a 14 gauge, three-conductor size with polarized or grounded plug and receptacle.
5) Fire Extinguishers
    a. At least one 2A:10B:C fire extinguisher visible, mounted, and serviced annually
    b. At least one K Class fire extinguisher visible, mounted and serviced annually (grease laden vapors)

	
2A:10B:C	K Class

6) Combustible vegetation and waste
    a. Combustible waste material shall not accumulate and a waste collection and removal plan shall be established (OFC 304)**.**
    b. Combustible waste, vegetation and similar materials shall be kept a minimum of 10 feet from compressed gas containers, cylinders, tanks and systems (OFC 5303.7.2).
    c. Trash receptacles shall be provided on site. One receptacle for every two units, and located a minimum of 10 feet from combustible fuel tanks on the MFU.

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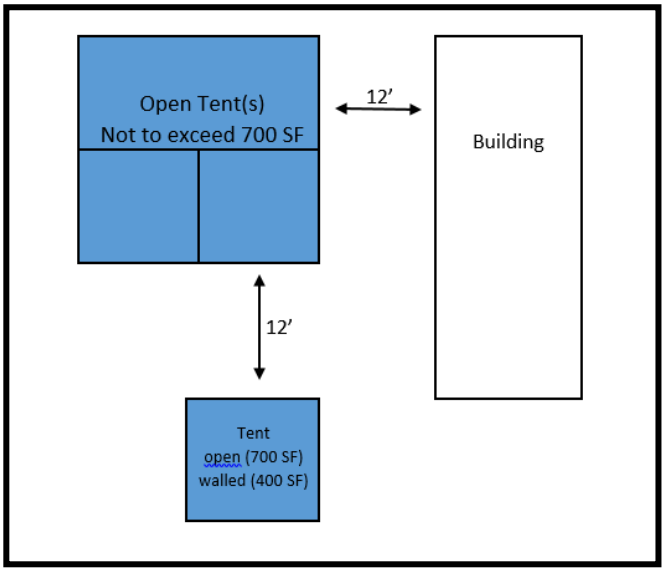
Tents, and Temporary Membrane Structures

Standard

1) Tents and membrane structures having an area in excess of 400 square feet shall not be erected, operated or maintained for any purpose without first obtaining a permit (OFC 3103.2).

   Exceptions:

   1. Tents used exclusively for recreational camping purposes.
   2. Tents open on all sides that comply with <u>all</u> of the following:
      - 2.1. Individual tents having a maximum size of 700 square feet.
      - 2.2. The aggregate area of multiple tents placed side by side without a fire break clearance of 12 feet, not exceeding 700 square feet total.
      - 2.3. A minimum clearance of 12 feet to all structures and other tents.



2) Membrane structures that are erected on buildings, balconies, decks or other structures shall be regulated as permanent membrane structures (OFC 3103.8.4).

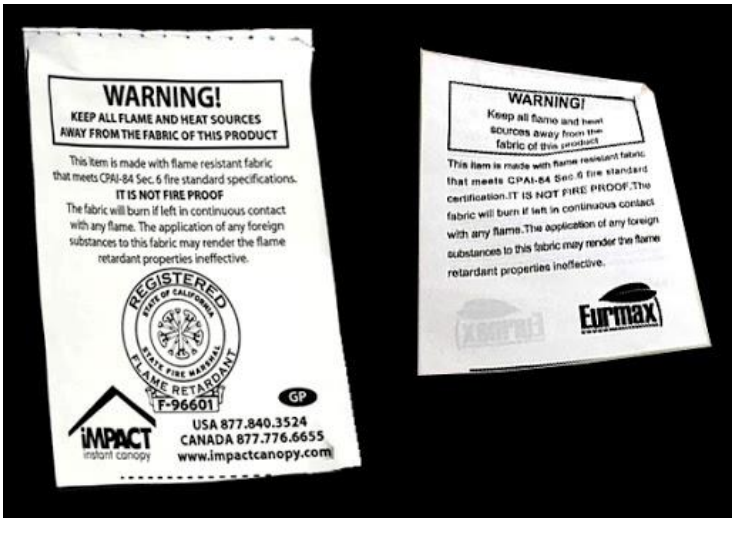
3) Temporary tents, air-supported, air inflated or tensioned membrane structures shall not be erected for a period of more than 180 days within a 12-month period on a single premises (OFC 3103.5).

Specifications

1) Location
   a. Tents or membrane structures shall not be located within 20 feet of *lot lines*, buildings, other tents or membrane structures, parked vehicles or internal combustion engines. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the temporary membrane structure or tent (OFC 3103.8.2).
   b. Tents **not used for cooking**, the separation distance of 20 feet is not required when the aggregate floor area does not exceed 15,000 square feet (OFC 3103.8.2).
   c. Tents **used for cooking** require 20 feet of separation from other tents; this does not include the adjacent cooking tents (3104.15.5).

d. Tents shall have a minimum of a 12 foot fire break on all sides, unless multiple tents are arranged or set side by side (OFC 3103.8.6).
e. When multiple tents are arranged or set side by side, the aggregate length shall not exceed the required 150 feet for fire department access without a 20 foot fire break.
f. All cooking or heating appliances used in tents shall be a minimum of 10 feet from the exits or any combustible materials (OFC 3104.15.3).
g. All food concession stands/booths shall have **at least one exit** for staff use that is a minimum 10 feet from cooking equipment, or as approved by the fire code official. All required exits shall be not less than 24 inches in clear width (OFC 3104.15.3).
h. Each vendor booth shall not be located within 20 feet of amusement rides or devices.
i. Outdoor cooking that produces sparks or grease laden vapors shall not be performed within 20 feet of a tent not used for cooking (OFC 3104.15.3).

2) **Flame resistance.** The sidewalls, awnings, drops, and tops of booths, membrane structures, tents shall be composed of flame resistant material or shall be treated with an approved flame retardant. The use of non-treated tarpaulins is prohibited during the hours the event is open to the public. All tents shall have a permanently affixed label indicating the type of tent, size, fabric, or material type, a manufacturer's certificate, or a fabric sample (OFC 3104.2).



3) **Cooking Tents**
a. Cooking appliances or devices that produce sparks or grease-laden vapors or flying embers (firebrands) shall not be used within 20 feet of a tent or temporary structure (OFC **3106.5.1)**
Exceptions:
1. Designated cooking tents not occupied by the public.
2. Tents or structures where cooking appliances are protected with an automatic fire-extinguishing system in accordance with Section 904.12.
c. Open flame or other devices emitting flame, fire or heat or any flammable or combustible liquids, gas, charcoal or other cooking device or any other unapproved devices shall not be permitted inside or located within 20 feet of the tent or membrane structures while open to the public (OFC 3107.4).

4) **Cooking Equipment** using combustible oils or solids shall meet the following (OFC 3106.5.2):
a. Operations such as warming of foods, cooking demonstrations and similar operations that use solid flammables, butane or other similar devices that do not pose an ignition hazard, shall be approved (OFC 3107.12.4).

b. When deep fat frying with oil with a depth of more than ¼ inch indoors, in a trailer, a tent, or in a booth, a UL300 listed automatic fire suppression system shall be installed.
c. Any cooking device that is **indoors, in a trailer, or in a booth** and that creates grease-laden vapors shall be provided with an approved hood ventilation method (OFC 609.2).
d. All hood ventilating systems are required to be installed in accordance with the Oregon Mechanical Specialty Code and be cleaned prior to the start of the event and as often as needed to prevent the build-up of grease during the event (OFC 609.1).
e. A noncombustible lid shall be immediately available. The lid shall be of sufficient size to cover the cooking well completely.
f. The cooking equipment shall be placed on a noncombustible surface.
g. Electrical cooking and heating equipment shall comply with NFPA 70 (OFC 3107.12.7).

5) **Fire Extinguishers:**
   a. A readily accessible minimum 2A-10B:C rated fire extinguisher. Additional fire extinguishers of the same type and rating may be required to ensure that no employee will have to travel more than 75 feet to obtain a fire extinguisher.
   b. A portable fire extinguisher having a "K" rating is required in any food concession stand/booth indoors or outdoors, accessible within 30 foot travel distance, where cooking appliances produce grease or smoke laden vapors and frying with a liquid depth of more than ¼ inch of oil.

6) Hay, straw, shavings or similar combustible materials shall not be located within any tent or membrane structure containing an assembly occupancy, except the materials necessary for the daily feeding and care of animals. Sawdust and shavings utilized for a public performance or exhibit shall not be prohibited provided that the sawdust and shavings are kept damp. Combustible materials shall not be permitted under stands or seats at any time (OFC 3107.2).

7) Smoking shall not be permitted in tents or membrane structures. Approved "No Smoking" signs shall be conspicuously posted in accordance with Section 310.

8) Fireworks shall not be used within 100 feet of tents or membrane structures *(OFC* 3107.5).

9) Generators and other internal combustion power sources shall be separated from tents or membrane structures by not less than 20 feet, placed on an approved surface and isolated from contact with the public by fencing, enclosure or other approved means (OFC 3107.16).

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Emergency Overnight Shelters for the Homeless Due to Winter Storm Warning

Purpose

This Winter Storm Warning Shelter Permit supplements the Corvallis Development Services Temporary Change of Use (TCOU) permitting process. This Emergency Overnight Shelter for the Homeless Winter Storm Warning Permit is intended to facilitate the short notice establishment of emergency shelters during severe cold weather. This Winter Storm Warning permit is **NOT** intended to be issued in lieu of the formal TCOU, or permanent change of use permitting process. For the purposes of this permit, severe cold weather is defined by a National Oceanic and Atmospheric Administration (NOAA) "Winter Storm Warning".

Application

With **preapproval from the Corvallis Fire Department**, this Winter Storm Warning permit contains the **minimum** guidelines to allow:

a. A building not normally designated as an R Occupancy (use of a building or structure, or a portion thereof, for sleeping purposes) to be used as an emergency overnight shelter for the homeless during severe cold weather; or,
b. A building currently operating as an R occupancy under an approved Temporary Change of Use permit through Corvallis Development Services to increase the occupant load during severe cold weather to provide temporary emergency overnight housing for the homeless; or,
c. A building normally designated through the building code as an R occupancy to increase the occupant load during severe cold weather to provide temporary emergency overnight housing for the homeless.

Time limits

With CFD preapproval, a building may be used as an emergency overnight shelter for the homeless for the duration of an issued NOAA "Winter Storm Warning".

Maximum Number of Occupants Allowed

The maximum number of allowable emergency overnight shelter occupants shall be calculated using an occupant load factor of one (1) individual for every thirty-five (35) square feet of room area. For example, a room with 980 square feet would be allowed to provide temporary shelter for up to 28 occupants. 980 divided by 35 = 28.

General Life-Safety Requirements

The following life-safety requirements shall apply to buildings being used as an Emergency Overnight Severe Cold Weather Shelter:

1. **Fire sprinklers.** It is not necessary for a building to have fire sprinklers installed to allow it to be used as an Emergency Overnight Severe Cold Weather Shelter. However, buildings with approved fire sprinklers installed may be granted more flexibility as follows:
   - When a building has approved fire sprinklers installed throughout, temporary shelter sleeping areas may be located on any building floor level.
   - When a building is not fully fire sprinklered, temporary shelter sleeping areas may only be located on the first (ground) or second floor. Sleeping areas are not permitted in basement areas of a non-fire sprinklered building.

2. **Smoke alarms and detection.** All Emergency Overnight Severe Cold Weather Shelter sleeping areas shall be provided with approved smoke alarms or an approved smoke detection system.
   - Smoke alarms may be battery operated.

- All buildings used for Emergency Overnight Severe Cold Weather Shelter operations shall be equipped with smoke alarms or a smoke detection system as follows:
    1. Buildings utilized as temporary shelters for the homeless shall be equipped with smoke detection and alarm systems installed with the benefit of a permit.
    2. Each room used for sleeping shall be provided with a working smoke alarm or smoke detector interconnected into an alarm system.
    3. Hallways serving as a means of egress for sleeping rooms shall be provided with a working smoke alarm or smoke detector interconnected into an alarm system.
    4. In buildings that are not equipped with an automatic fire sprinkler system throughout, the smoke alarms in the sleeping rooms and egress path shall be interconnected and monitored at a constantly attended location.

3. **Carbon monoxide (CO) alarms and detection.**
    - All an Emergency Overnight Severe Cold Weather Shelter sleeping areas shall be provided with approved carbon monoxide alarms or a complete approved detection system in buildings that have a carbon monoxide source such as a heater, fireplace, furnace, appliance or cooking source that uses coal, wood, petroleum products and other fuels that emit carbon monoxide as a by-product of combustion. This would include buildings with an attached garage with a door, ductwork or ventilation shaft that communicates with the rooms intended for sleeping.
    - Carbon monoxide alarms may be battery powered.

4. **Means of Egress (Exits).** All floor levels of the emergency overnight cold weather shelter shall have a minimum of two means of egress (exits) from each floor level. Exits from sleeping areas shall be as follows;
    a. Sleeping areas located on the ground floor of a temporary shelter with an occupant load of 49 or less shall have a least one (1) exit and at least one (1) window qualifying as an escape or rescue window as defined by the building code.
    b. All other floor levels used as temporary shelter sleeping areas that have an occupant load of 10 or more shall have two (2) exits from the area. The exits serving the areas shall be separated by a distance equal to at least 1/3 of the longest diagonal distance of the area.
    c. Each individual 35 sf/person sleeping area shall be clearly delineated on the floor in colored tape.
    d. In sleeping areas, a 3-foot-wide egress pathway shall be clearly delineated on the floor using colored tape.

5. **Specific Fire and Life Safety Requirements**
    a. All required building fire and life safety system components shall have current inspection and maintenance records including: fire sprinkler systems, fire alarm systems, kitchen hood systems, emergency and egress lighting, etc.
    b. Any fabric structure used in the building as a visual barrier for privacy must be constructed of fire retardant fabric. In fire sprinkler protected rooms the fabric structures shall have open tops to allow for proper fire sprinkler function.
    c. All means of egress (exit) paths shall be maintained free of obstructions at all times.
    d. Exit signs shall be illuminated at all times.
    e. 2A-10B-C rated fire extinguishers shall be permanently mounted in a conspicuous location. The walking distance between fire extinguishers shall not exceed 75 feet throughout the structure.
    f. Sleeping rooms serving 10 or more occupants, that exit only into a hallway, shall be provided with at least one working flashlight when occupied.
    g. Cooking appliances located in temporary sleeping areas shall be locked-out to prevent use.
    h. The use of space heaters or portable heaters is prohibited.
    i. There shall be NO SMOKING OR OPEN FLAMES within the building during shelter operations.

Emergency Planning Requirements

1. **Emergency Evacuation Plan.** All emergency overnight cold weather shelters shall create and maintain an approved emergency evacuation plan addressing the evacuation of all occupants in an emergency event. At a minimum, the emergency evacuation plan shall contain the following:
    a. **Building floor plans.** Building floor plans for each floor of the temporary shelter, with sleeping areas and means of egress clearly identified, shall be posted throughout the temporary shelter.
        - **Sleeping Areas.** Each sleeping area on the floor plan shall identify the maximum number of occupants that it is permitted to serve under the conditions of this permit. The occupant load of each sleeping area shall be posted in that room.
        - **Room size.** The square footage of all rooms of the temporary shelter shall be identified on the floor plan.
        - **Egress (exit) path.** Building floor plans shall clearly show the egress (exit) paths from all areas of the temporary shelter.
        - **Fire Extinguishers.** The building floor plan shall include locations of all required fire extinguishers.
    b. **Life-safety systems.** The emergency evacuation plan shall also include information about the fire sprinkler system, fire alarm system, and smoke detection/alarms.
    c. **Occupant list.** A room by room list of all occupants that are provided emergency overnight shelter must be maintained by the Fire Watch, and made available to the emergency personnel in the event of a fire, incident, or inspection.

2. **Fire Watch.** During sleeping hours, a fire watch shall be maintained continuously. This means at least one responsible person shall be awake and assigned this responsibility. This duty may be rotated among a number of responsible adults during the sleeping hours. The fire watch person shall be equipped with a working flashlight and have access to a phone or carry a cell phone on their person.

3. **Documentation.** Documentation of all fire safety requirements including copies of the Emergency Overnight Severe Cold Weather Shelter evacuation plan and occupant lists shall be maintained on site and shall be available for review at the request of the Fire Marshal.

4. **Notification.** The Fire Marshal shall be notified prior to the Emergency Overnight Severe Cold Weather Shelter being activated. Notification shall include the number of occupants being temporarily sheltered, and the expected days and times that the temporary shelter will be used. The Fire Marshal may require an inspection prior to the shelter being occupied.

Revocation

This Winter Storm Warning permit shall be subject to review and/or revocation. Participating preapproved buildings will remain so, as long as they remain in compliance with the terms of this permit.

a. Periodic inspections shall be conducted by the Corvallis Fire Department in order to determine compliance with the terms of this permit, as well as for general fire and life safety. Such inspections may be unannounced.
b. In the event of any notice of the need to comply with any discrepancies that the building may offer, all work is to be done under benefit of permits through Corvallis Development Services.
c. Failure to comply with the conditions of this permit may result in the immediate need to relocate the residents to another location.
d. Failure to comply with the conditions of this permit may result in the issuance of a Notice of Violation.

Violations

Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof shall be subject to the provisions of CFC 110.4.1 - 110.4.1.8.12.

a. Using a building, or portion thereof, in an unsafe manner beyond the scope of its designed use and or occupancy classification carries a maximum civil penalty of $1,000 (CFC 110.4.8.2(o).
b. Overcrowding beyond the approved capacity of a building carries a maximum civil penalty of $1,000 (CFC 110.4.8.2(c).
c. Each incidence of a violation of the Corvallis Fire Code is a Class C misdemeanor which is punishable by a fine not exceeding $500 for each day that the condition exists, or by imprisonment not exceeding 30 days, or by both such fine and imprisonment as outlined in Corvallis Municipal Code Chapter 5 (CFC 110.4.1).

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Violations

Violations (CMC Section 7.08.080)

110.3.3 Prosecution of violations. If the notice of violation is not complied with promptly, the Corvallis Fire Marshal is authorized to request the legal counsel of the jurisdiction to institute the appropriate legal proceedings at law or in equity to restrain, correct or abate such violation or to require removal or termination of the unlawful occupancy of the structure in violation of the provisions of this code or of the order or direction made pursuant hereto.

110.4 Violation penalties. Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter repair or do work in violation of the approved construction documents or directive of the Corvallis Fire Marshal, or of a permit or certificate used under provisions of this code, shall be subject to the provisions of 110.4.1 - 110.4.12.

110.4.8.1 General. In addition to any other penalty provided by law the owner of any unsafe building or owner of property upon which a fire hazard exists may incur a civil penalty in an amount as specified in 110.8.4.2 plus any cost of service or recording costs

110.4.8.2 Authorized civil penalties and fees. The fire chief is authorized to impose civil penalties as follows:

a) Unsafe or dangerous building, **$1,000/$400** (maximum/minimum);
b) Blocking or obstructing an exit way, **$1,000/$400** (maximum/minimum);
c) Overcrowding beyond the approved capacity for a building **$1,000/$400** (maximum/minimum);
d) Failure to immediately restore fire sprinkler standpipe alarm or other fire protective or extinguishing systems or appliances to operational condition **$900/$300** (maximum/minimum);
e) Failure to maintain exit signs or illumination **$900/$300** (maximum/minimum);
f) Possession or use of illegal fireworks **$900/$300** (maximum/minimum);
g) Tampering with fire equipment appliances **$900/$300** (maximum/minimum);
h) Failure to provide alarm supervision for an automatic sprinkler system with over 100 heads **$600/$200** (maximum/minimum);
i) Failure to provide cleaning of kitchen ventilating hood and duct systems **$600/$200** (maximum/minimum);
j) Failure to abate an electrical hazard **$600/$200** (maximum/minimum);
k) Storage use dispensing and/or mixing of flammable and combustible liquids not in accordance with OFC Chapter 57 **$600/$200** (maximum/minimum);
l) Illegal storage of hazardous equipment in buildings **$600/$200** (maximum/minimum);
m) Failure to remove combustible decorative material from a public assembly **$600/$200** (maximum/minimum);
n) Failure to provide or maintain a fire extinguisher **$400/$150** (maximum/minimum);
o) Using a building or portion thereof rooms in an unsafe manner beyond the scope of its designed use and or occupancy classification **$1,000/$400** (maximum/minimum);
p) Open burning in violation of OFC Section 307, **$400/$150** (maximum/minimum);
q) Failure to obtain a fire permit in accordance with OFC Section 105 **$200/$75** (maximum/minimum);
r) Failure to provide premises identification **$200/$75** (maximum/minimum);
s) Permitting accumulation of waste material in violation of Corvallis Fire Code **$200/$75** (maximum/minimum);
t) Failure to perform required inspections and maintenance of fire protection systems in accordance with Corvallis Fire Code **$200/$75** (maximum/minimum);
u) Failure to perform required fire drills and or to mail in certification **$200/$75** (maximum/minimum);
v) Parking in a marked Fire Lane **$200/$75** (maximum/minimum);
w) Obstructing a fire hydrant **$200/$75** (maximum/minimum);
x) Smoking a lighted pipe, cigar, cigarette, hand-rolled material, vaporizing and aerosolizing of inhalants in a congregate living facility **$200/$75** (maximum/minimum);

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